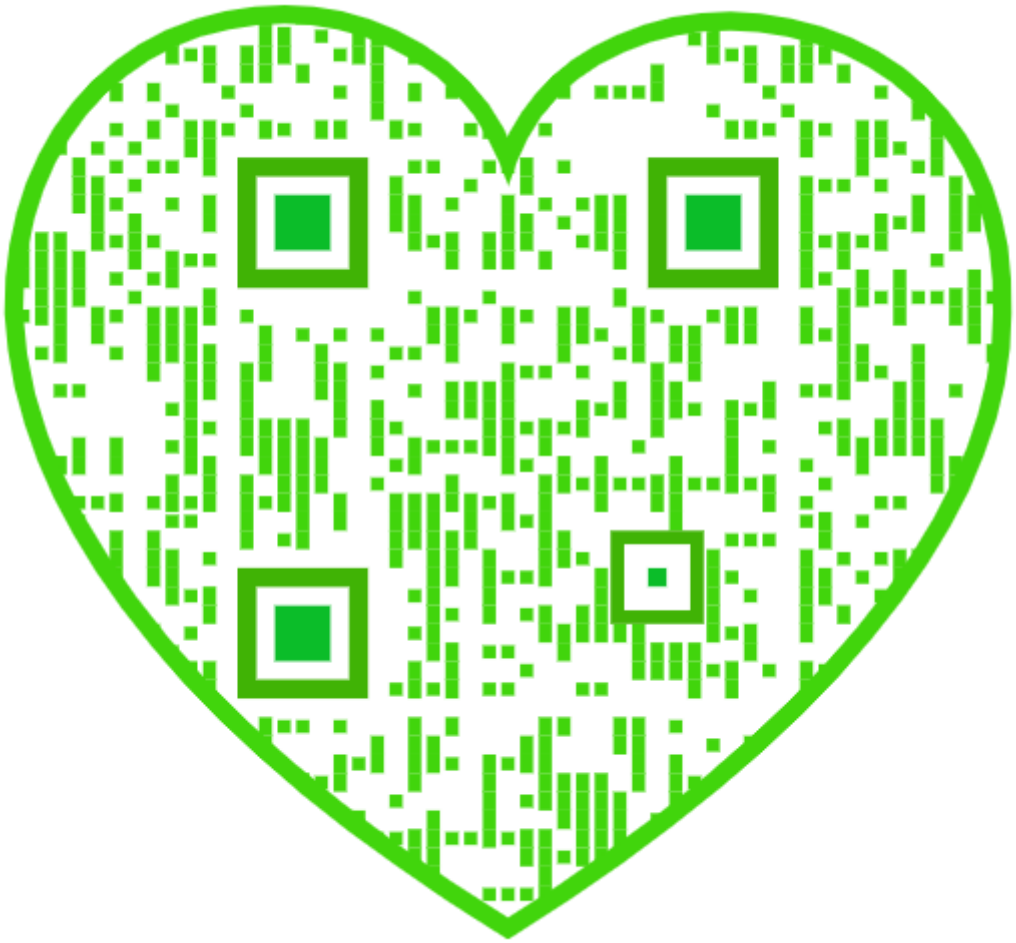
UMASS/AMHERST
312066 0333 3275 0

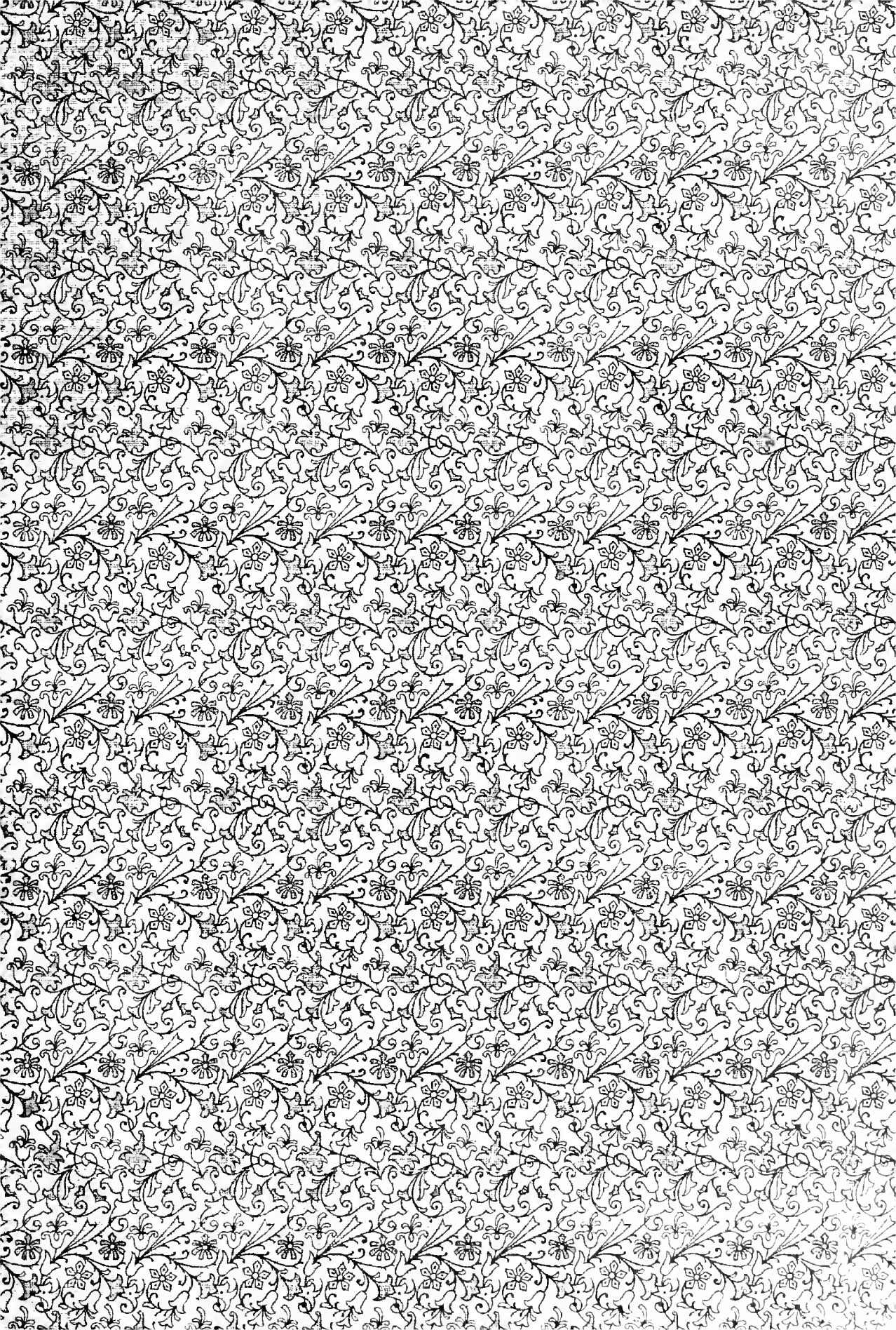


LIBRARY
OF THE

MASSACHUSETTS
AGRICULTURAL
COLLEGE

SOURCE.

S.



THE

British Bee Journal,

AND

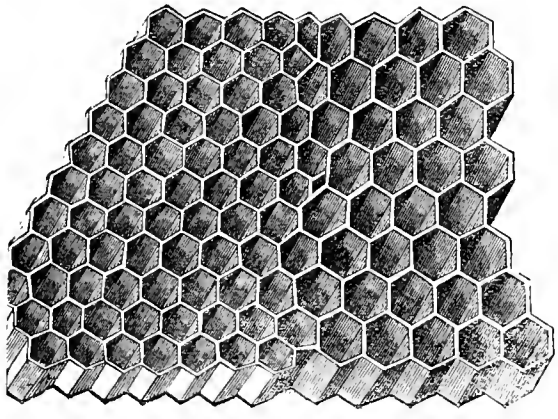
BEE-KEEPER'S ADVISER.

CONDUCTED BY

CHARLES NASH ABBOTT,
SOUTHALL.

VOLUME V.

1877—8.



PUBLISHED AT THE OFFICE OF THE BRITISH BEE JOURNAL,
SOUTHALL, NEAR LONDON;

AND BY

KENT AND CO., 23 PATERNOSTER ROW, E.C.

UNIVERSITY OF MASS... AMHERST, MASS.

INDEX.

Abbott, C. N., his new observatory hive, 96; his new-idea frame, 61, 81, 109; his guinea standard hive, 178; his exhibition of bees at South Kensington, 46, 47; his bee-manipulation at the Edinburgh Show, 105; his northern standard hive, 217
Abbott, Brothers, their catalogue of bee appliances, 177
Adapting-boards, 206, 211
Adaptor zinc, 220
Adulteration of honey, 36, 122; how to prevent, 186
Africa, native bee-hives in, 13
After-swarms, or casts, 27
Afternoon among the bees, 219
Agrimony, its narcotic effects on bees, 91; its uses in medicine, 91, 92
Alpine, or yellow bee, 53, 118, 119
Alsike, or hybrid clover, 129, 145
Alyssum, sweet, 146
Amateur's standard hive, 217
American cousins, to our, 7
American 'honey,' 19
Ants, 164; in hives, 93
Apiarian literature in chronological order, 112, 113, 130, 131, 151–153, 172
Apiarian notes, 148
Apiary, commencing an, 3, 4, 135; suggestion for managing a small, 71
Apiary, King's Somborne, Hants, 8, 9, 32
Apicoltore, extracts from, 164
Apicultural parallel, an, 106
Apiculture in Scotland, 56
Apis dorsata, 166, 182, 190, 202; account of taking the nest of, in Borneo, 190, 191
April, 209
Arabis alpinus, 117, 193
Arbroath bee and honey show, 103
Artificial comb-foundations, Cheshire's, 30; American, 21, 63, 67, 74, 206
Artificial pollen, 21, 176, 192, 206, 207; mode of taking, by the bees, 176
Artificial swarming, 24, 64
Artificial swarms, 53
Aston's cage for exhibiting queens, 81; his new feeder, 137
August, 61
Ayrshire, season in, 93
Azalea pontica, poisonous honey from, 106, 107
Bar-frames, improvement in, 200, 217
Bar-frame hive, preventing loss of heat in, 81
Barley-sugar, 129, 157; how to make, 117, 118
Bass-wood, honey gathered from, 215
Beeby, Dr., on the special senses of the bee, 140
Bee, welcome to the, 7; order of the, 216
Bee anæsthenics, 121, 147
Bee-books, 21, 38, 41
Bee bibliography, 38, 111, 112, 130, 151, 172
Bee-culture, plea for, 110
Bee-flowers, 117, 201
Bee-food and syrup for uniting, 81; that will not candy, 122
Bee-hunting in Borneo, 190
Bee-keeper, letter of a, 29
Bee-keepers, questions for, 54
Bee-keepers' Assoc., 104
Bee-keeping, directions for, 133; essay on, by Mrs. Tupper, 127, 142, 171, 191; advantages of, 187; extent to which it is carried on in America, *ib.*; profits on, *ib.*; objections to, answered, 188; in India, 12; in the Himalayas, 15; in Sweden, 124; in Fifeshire, *ib.*; in Forfarshire, 125; in New Zealand, 215; lectures on, 29, 214
Bee law, 68, 69, 92
Bee literature, 51. *See* Bee Bibliography
Bee manipulation, 218
Bee plants, 117, 201
Bee-swarming extraordinary, 57
Bees, the, a poem, 18; do they sleep? 4, 5; pasturage for, 16, 89, 145, 167, 200, 215; and noises, 20; fructification by, 41; at South Kensington, 46; in pound, 50; deserting hives, 54; hive of, 57; tongue of, 66; deserting supers, 68; plenty of, but no honey, 78; sagacity of, 90; in a church, 93; divisions of, 118; functions and habits of, 120; condemned, 122; Carniola, 123; removing, 137; special senses of, 140; history of, 150; legs of, 158–160; their mode of gathering pollen, 159; as weather indicators, 164; on 'strike' in Australia, *ib.*; destruction of, 169; undue activity to be discouraged, 175; their construction of queen-cells, 179; their ability to repair their loss of a queen, *ib.*; on the old system, 185; new races of, 190; wintering of, in America, 191; consumption by, of honey in winter, 191; extent of their knowledge, 192; management of, necessary, *ib.*; are they profitable? 201; old and young, their respective functions, 204; dying, 206; an afternoon with, 219; in Lincolnshire, 220; room for, *ib.*; management, 221
Bennett, R. J., his apiarian notes for 1877, 138
Berlepsch, Baron von, on moveable hives, 56; biography of, 163, 164; on the number of eggs laid by the queen, 178
Bibliography of bee-keeping, 38
Blairgowrie District Bee-keepers' Society, 50
Bokhara clover, 17
Borage, 129, 220
Borneo, honey bee of, 190; bee hunting in, *ib.*
British Bee Journal, 1, 135, 155, *et passim*; binding the, 215
British Bee-keepers' Association, 58; report of, 72; its decadence, 155; annual report of, 162, 163; its probable dissolution, 183; adjourned meeting, and its result, 213, 214; letter respecting, 214
Broom, 19
Buckwheat, 89
Caledonian Apiarian Society, 47, 48, 65, 138; its memorial to the Highland Agricultural Society, 47, 48, 110; its show, 84; its prize list, 85
Californian honey, 169
Candied, how to prevent honey being, 186
Canterbury bells, 16
Carlisle, bees at the international show at, 77, 102
Carniola bees, 123
Casts, preventing, 27; value of, *ib.*
Central and provincial shows, 31
Central Association of Bee-keepers proposed, 155–157, 176, 177, 183, 184, 197, 198; rules for, 155, 156
Ceylon, bees in, 166
Chloroform as a bee-anæsthenic, 82, 105, 121
Chrysanthemums, 164
Clover, white, hybrid, Italian crimson, red, 129, 145, 158
Collin, Abbé, *Natural History of Bees*, with editorial notes, 97, 118, 120, 138, 160, 178, 179, 203, 204
Comb, a large card of, 107
Comb-foundations, Raitt's, 52, 220; mode of making, 63, 67; Cheshire's, 74; price of, 206
Comb, duration of, 54; curiously built, 123; value of, 129; plenty of, with but few bees, 78
Cottager's standard hive, 56
Crawfield and Ifield show, 85
Crocuses, 176; artificial, *ib.*
Crooked combs, 60
Crystallization, 36
Crystallized honey, 206
Currant-trees, 158
Cyprian bees, 167
Dead white bees, 2
December, 135
Defaulting treasurer, 166
Dermeste, 164
Devon and Exeter Bee-keepers' Association, 49, 66, 196, 197
Distance gauges, 32
Divisional hive, 83, 186
Dorchester bee and honey show, 6, 7, 83; prize list, 84
Dorsetshire Bee-keepers' Association, 7; bee and Honey Show, 48, 65; how to spend a week pleasantly in, 48, 49; comments on shows, 98
Doubling stocks, 4
Driving and uniting, 109, 125, 207; quick, 170
Drone and queen excluder, 211, 212
Drone-comb, removal of, 2, 21, 55, 162
Drones, limiting the number of, 17; trapping *v.* preventing their production, 28; killing, in April, 33; destroying, 34; early, 20, 41; in the time of scarcity, 45; plea for the, 51; superabundance of, 71; value of, 110; production of, 162; untimely, 168; number of, in hive, *ib.*
Drone-trap, accidental, 90
Dysentery, 116, 136; prevention of, 136, 157; bees suffering from, 206
Dzierzon on moveable hives, 56; on the number of eggs laid by the queen, 178
Ealing bee show, 29, 66, 158, 212
Early drones, 210
Early swarms, 43
East of Scotland Bee-keepers' show at Dundee, 101; schedule of prizes for 1878, 183; annual meeting, 195
Echoes from the hives, 19, 41, 58, 74, 92, 110, 132, 153, 173, 190, 205, 221
Edinburgh Show, the, 104, 123; bees and honey at, 47
Eggs, sex of, 37, 55, 179
Ellesmere, Salop, bees at, 102
Entomology, economic, bees, 150
Entrances, narrowing, 96, 157, 176; regulation of, 193
Esparcette, 17
Exhibitors, honesty in, 105, 122, 145
Extracted and comb honey, relative worth of, 43
Extracting honey, 79
Extractor, 80, 93
February, 175; work during 175, 176
Feeder, a new, 221

Feeding in bad weather, 2; swarms, 27; apparatus, 35
Fertile workers, 59, 138, 139, 168; whence come they? 135
Fertilization, controlling, 222
Fighting, prevention of, 2
Fifeshire, bee-keeping in, 124
Fire at printing-office, 175
First attempts, 57
Floor-boards, examination of, 157
Fly-catchers, 18
Food of old and young bees, 36
Foreigners at local shows, 144, 164, 165, 184, 198
Forfarshire, bees in, 16; bee-keeping in, 125
Foul brood, 23, 57, 174
Fox, S. B., lecture on bees and bee-keeping, 29
Frame-hives, new cover for, 50
French supering, 89
Fuggle, H., hives after his pattern, 178
Furze, 19, 54
Geddie's octagon hive, 13, 14
Gedling, Nottinghamshire, bee show for, 48
Germany, echoes from, 12; intelligence from, 19; apiarian literature in, 111
Glasgow, Natural History Society of, 138; honey prosecution at, 160
Glucose, 17
Gooseberry-trees, 158
Graham, Miss Stirling, of Duntrune, death of, 82, 97, 98, 138
Grantham, show at, 77; proposed as the locale of the Central Association, 156
Grape sugar, 188; preparation of, *ib.*
Gresham College hive, 13, 14
Grimm, Kate, amount of honey extracted by her, 4
Guinea standard hive, 178
Harvest, end of, and value of young bees, 64
Heat, preservation of, in hives, 157
Hertfordshire, Bee Association of, 31
Hilbert, Herr, his experiments on milk-feeding, 12; on hens' eggs as food for bees, 12, 13
Himalayas, bee-keeping in the, 15
Hives, antique, 66, 195
Hives, *débris* from, 2; agencies for, 6; weight of, 19; shading, 27; cheap, 35, 153; for doubling, 43; protection of, against rain and snow, 96; selection of, 157; manufacturers of, *ib.*
Hives and frames, 174
Hiving bees, novel mode of, 57; swarms, 42
Hoges' patent rubber ball-eases, 177
Honey-bee parable, a, 72
Honey-dew, 167
Honey-getting, with the extractor, 4, 59
Honey, adulterated, 36, 37; adulteration of, 117; gluts of, 27, 46; harvest of 1877 a failure, 77; taking, from bar-frame hives, 78; feeding with old, 88; resources, 129
How to make the best of it, 78
Huillon, M., on the sexes of eggs, 179
Humane system, the, its antiquity, 194, 195
Hybrids, 35
Ifield hive, the, 55, 217
Indian bee-keeping, 37
Italian Alp bee, 9, 53, 119; its introduction into England, by Mr. Woodbury, *ib.*; its superiority to the black bee, 10, 12
Italian bees, the, 142; changing from common to, 143
Italian crimson clover, 145
Italy, intelligence from, 19
Ivy honey, 153
January, 155, 157, 158
Java bee, the, 202
Judges' duties, 174
June, 23
July, 45
Kent, season in, 107
King's Somborne, Hants, apiary, 8, 9, 32
'Lanarkshire Bee-keeper,' his invention of comb-foundations, 63
Laurel as a honey plant, 34, 72, 74
Leaflets, 59, 110
Lectures for winter evenings, 145; on bee-keeping, 29, 214
Lentils, 17
Ligurians, 107
Ligurianizing, 24, 35, 64, 109, 132, 148, 149
Lime or linden, 167, 200; its utility, 167, 200, 215
Lincolnshire Bee-keepers' Association, 49, 98, 99, 100, 165,
Linden, the, and its varieties, 167, 200, 215
Lisburn (Ireland), Horticultural Society, 66
Little Wonder, the, 19, 42, 79
Lucerne, 17
March, 191; weather in, 209
May, 1
Medick, black, 146
Melilot clover, honey derivable from, 54, 88
Mice, trap for, 157
Mild weather, effects of, 191
Mobilism *v.* fixism, 56, 86
Monster swarm, a, 57
Mother bee, 160
Moving stocks, 193
Murphy, A., *The Bees*, 18
Mustard-plant, 45, 99, 117
Nadir system, 58
Nadirs, 205; affixing, 221
National industry, a great, 187
Neighbours' Philadelphia hive, and supers, 28; new cover for frame-hives, 50; new safety bellows smoker, 218
Nenagh, bee-keeping in, 93
New-idea frames, 61, 62, 81, 109
New Quay visitors, 86
New Zealand, longings from, 202; bee-keeping in, 215
No accounting for taste, 68
November, 115
Observatory hive, Abbott's, 96; Wilson's, 97; stocking, 177
Octagon hive, 35
October, 95; work for, 95, 96
Odiham show, 102
Old bees of queenless stocks only carry pollen, 210
Old combs, melting up, 115
Order of the bee, 216
Organic perfection, 164
Palm-bearing willows, 117, 191
Paris international exhibition, 109
Parmly, Dr. E., prizes offered by, 164
Parthenogenesis, 55, 179
Pasturage for bees, III. 16, 17; IV. 89, 90; V. 145; VI. 167; VII. 200; VIII. 215
Pea-flour, 20, 176, 192, 207; various vehicles for, *ib.*; methods of giving, to bees, *ib.*
Perforated zinc, 68, 90; experience with, 121, 212
Perrin, C. O., 118
Personal, 194
Perthshire, bees in, 16; bee-keeping in, 92, 93
Pettigrew, Mr., his challenge, 5, 20, 183; his mode of taking honey, 80; his recognition of the usefulness of bar-frames, *ib.*
Phacelia, 135
Pine, Dr., his lotion, 54
Poisonous honey, 106
Pollen, substitutes for, 37; how gathered by bees, 159
Pony, a, stung to death by bees, 72
Postal defalcations, 93
Prize schedules, 199
Prize essays, 164
Profitable bee-keeping, 153
Prolific bees, 57
Protest, a, and an exposé, 55
Puff-ball, 125
Queen and drone excluder, 212
Queen-bee, duration of her value, 54; natural history of, 160, 161; her sting, 161; her fertilisation, *ib.*; her fecundity, 162; number of eggs laid daily by, 178; her fecundity dependent on the number of population, 178; lecture on, 179, 180
Queen-cells, 162, 203; introducing, 24; construction of, 179; their form, *ib.*; number of, in hive, *ib.*; how formed, 206, 207
Queenlessness, 210
Queenless stocks, 2, 25, 211
Queen-piping, 179, 180, 219
Queen-raising, 54, 132
Queen, uniting, after swarming, 21
Queen-wasps, destruction of, 193
Queens, clipping wings of, 20; introducing, 24; saving and restoring, 25; importing, 25; powers of bees in raising, 36; raising, 54; introduction of, 74; cage for exhibiting, 81; two, in the same hive, 90, 105, 106; public duel between two, 92; plurality of, 147; fertilisation of, in confinement, 166; rearing and introducing, *ib.*; their birth, 179; their propensity to destroy their rivals, 179, 180; various kinds of, 180; fecundation of, 180; their fertility, 181; supply of, necessary, 181; raising surplus, 181; larvæ from which they are raised, 203; mode of killing rival, *ib.*; the eggs of, 204; treatment of stranger, 204
Queries and replies, 15, 20, 43, 59, 93, 113, 132, 174, 174, 206, 222
Questions to be solved, 36
Quick driving, 170, 184, 185
Quieting bees, 107
Quilt, the, 42, 68, 133, 206
Raitt, W., lecture by, on the queen-bee, 79, 180
Rape, 17
Raspberries, 158
Readers, to our, 1
Rectifying combs, 81, 109
Red clover, 145, 146
Removing stocks, 153
Renfrewshire, season in, 88
Robbing, 175; prevention of, 2
Root, A. I., on pollen-gathering, 159; on the foreleg of the worker bee, 159, 160; on the amount of honey gathered from bass-wood, 215
Sailor's bee-hive, 8
Sainfoin, 17
Scented syrup, 55
Scotland, apiculture in, 56
Season, retrospect of the, 68; the present, 220
Seasonable hints, 7
Secretaries, hints to, 19
Sections, super, securing in their places, 34
Sectional supers, 26, 132
September, 77
Settling accounts, 149, 166, 198
Sherborne bee and honey show, 6, 7, 98, 99
Shows, arrangement of, 6, 27, 50, 65; of 1878, 158; advice respecting, *ib.*
Shuckard on British Bees, 159, 160
Siebold, Von, his experiments on the sexes of eggs, 179
Simmins' divisional hive, 83, 186
Singular case, 125

'Smelator,' proposal to use the word, for extractor, 86; obsolete information respecting, 108; honey-extractor *versus*, *ib.*
South Devon, summer experience in, 87
South Kensington, bees at, 46
Southern California, honey products of, 38
Spring feeding, 42, 209; management, 186
Standard frame, the, 32, 33
Standard frames, Cowan's and Abbott's, 206
Standard hive, the, 19
Starvation, prevention of loss by, 192
Steele's honey extractor, 185
Stewarton hive and system, 126
Stewarton hive, the, 169, 199, 200, 216
Stimulative feeding, 115, 153, 176
Stinging bee-keepers, 120
Stocks, examination of, 3; in straw skeps, breaking up, 73; uniting, 145; moving, 193
Strathmore, bees in, 146
Sugar syrup, crystallised, 21
Summer feeding, 89
Super-honey, mode of obtaining, 55
Supering, time for, 5, 26
Supers, sectional, 5, 26; additional, 46; bottomless, 59; removal of, 64; swarming from, 91; preparation of, 211
Sussex, the season in, 87
Swarm, a double, 57
Swarming, undue, 71; from supers, 91
Swarming-places, 67
Swarms, multiplicity of, 42; preventing, deserting their hives, 53, 55, 59; sending out, 193; packing, 194; in April, 210
Sweden, bee-keeping in, 124
Tapes, 185
'Ten Thousand,' retreat of the, 106
Tite, Mr., lecture on bee-keeping by, 29
Toad in the garden, 76
Toads, plea for the, 147, 170
Tomtits, 18; trap for, 157
Trained bees, 144
Transferring, 80, 169, 185, 222; by night, 147; brood from straw to wood, 108
Trapping drones, 28
Trebizond, poisonous honey of, 106
Trifolium incarnatum, 146, 174
Tritoma, 121, 145
Tupper, Mrs. essay on bee-keeping, 127, 142, 171; on bees in winter, 191
Ulivi, Don Giotto, 194
Unicomb observatory hive, 177
Uniting swarms, 25
Uniting stocks, 25, 110, 128, 145
Unprofitable customers, 86
Ventilation of hive, 96
Wagner, his theory that the size of the cells governs the sex of the bee, 179
Wall-flowers, 13, 16, 117, 135, 191, 193
Wasps' nests, destruction of, 95
Water, its consequence to bees, 129; dearth of, 211
Wax foundations, 74
Wax guides, attaching, 53, 58
Wax-moth, 3, 35; destruction of, 96
Wax, vegetable and bees', 164
Weak stocks, treatment of, 157
Weston-super-Mare bee and honey show, list of prize-winners, 85; lines on a straw skep at, 86
West of England Apiarian Society, 6, 28, 49; Taunton branch, its show not to be held this year, 185
What has been said of us, 29
White bees on alighting boards, 45
White or Dutch clover, 129, 145, 158
Wilson, F. W., proposed testimonial to, 47
Wilson, Brice, his observatory hive, 97, 98
Willows, pollen-bearing, 158
Winter feeding for, 95
Winter, preparation for, 115
Wolverhampton and Staffordshire Bee Association, 28, 103
Wolverhampton, season in, 107
Woodbury, Mr., on foul brood, 23
Woodbury hive, 202
Wonderful discovery, a, 120
Worker-bee, description of, 118; fore-leg of, 119, 160; duration of life of, 138
Yellow or Alpine Bee, 53, 119; its size, 119; its character, *ib.*
Young, Arthur, on bee literature, 111
Young queens, ovipositing, lateness of, 82

CONTRIBUTORS.

Adams, J. E., 92
Armstrong, J., 70
A. R., 108
A. W. B. 121, 185, 198
B. E. E., 34, 106
Bennett, R. J., 122
Blaker, R., 55, 217
Bligh, Henry, 214
Bouttell, T. H., 35, 68
Briscoe, J. E., 37, 199, 216
Carlton, C. W., 168
Chaplin, C., 202
Chapman, T. A., 53
Carr, W., 17, 89, 107, 145, 167, 200, 215
Cheshire, F., 30
C. H. H., 54
Child, W., 169
Clarke, A. J., 167
Clute, O., 187
Cook, H., 19
Country Doctor, a, 12
Crisp, T. W., 220
C. T., 19, 145, 166
Dadant, Ch., 86, 87
Danyell, Arthur, 169
Desborough, J. G., 104, 121, 197
D. G., 216
D. L., 168
Dodge, G. C., 188
Edwards, C., 146, 147, 200, 217
Eldridge, J. H., 12, 17, 19, 36, 121
E. W. L., 147
Fletcher, S. E., 34
Fust, H. Jenner, 36, 71
Fox, S. W. D., 90
Foster, J., 218
Frere, W. J. 107
F. S., 109
G. A. R., 184
G. F., 54
Godfrey, R. R., 149, 165, 198, 220
G. R., 53, 54
Hailes, Geo., 68
Hamlyn, James, 198
Henderson, G., 106
Hon. Sec., 198
Howard, John H., 122
Hunt, W., 18
Jack, John, 146
Jaekson, J. D., 202
Jackson, J. P., 215
Joyce, W. T., 220
J. C., 15
J. E. A., 87
J. R. J., 148
J. R. W., 38
J. S., Arbroath, 16, 51, 104, 108, 125
J. W. N., 144, 184
Lake, Isaac, 170
Lemare, F. H., 19
Lewis, Charles, 123
Ling, D., 221
Lister, C. W., 217
Lorrain, 34, 53
Lover of Bees, a, 56
Mann, William, 147
Martin, W., 165
Martin, P. E., 8, 32
Marlburia, 54
Miller, Arthur S. B., 105, 122, 123, 125, 147
Minson, G., 57
Moon, A. F., 201
Neighbour, Alfred, 28, 50, 92, 218
Norton, C. E., 166
Notts Bee-keeper, a, 165
Oldham, E. H., 170
Outsider, 51
Parmly, Elnick, 166
Paterson, D., 125
P., of Warwick, 89
Pearson, G. F., 54, 56, 68, 90
Phillips, P. H., 31, 183
Pine, Dr., 184, 185
Preston, W. C., 219
Punnett, W. C., 107
Questioner, 13, 18
Radcliffe, A. G., 12
Raitt, W., 30, 52, 66, 67, 90, 106, 199
Raven, 72
Renfrewshire Beekeeper, a, 9, 18, 19, 37, 88, 126
R. G., 56
R. H. C., 108
R. J. B., 123
R. M., 68
Rusbridge, Alfred, 31, 88
S. B., 145
Sic Vos non Vobis, 105
Simmins, S., 186
Smith, C. J., 33
Speechley, A., 122
Stathammar, Hjalmar, 124
Steele, R., 185
Symington, R., 183
Taunton, R. H., 89
T. F. W. T., 202
T. S., 89
T. W., 35
V. J., 70
W., 165
Warwickshire Bee-keeper, a, 165, 219
Webb, A., 69
W. C., 169
W. G., 220
White, John, 124
W. M., 164
Wood, J., 16
W. T. B., 205
W. T. J., 215
Wyatt, Samuel, 169
Young, Prescott, 186

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 49. Vol. V.] MAY, 1877. [Published Monthly.]

Editorial, Notices, &c.

TO OUR READERS.

At the commencement of this the Fifth Volume of the *British Bee Journal*, we take leave to thank our patrons and friends for the generous support they have accorded us in our journeying through the past year, and to express a hope that our safe pilotage will entitle us to their continued favour and recommendation.

We do not desire to enlarge upon the share we have taken in the great work of reviving the art of bee-culture as a means of obtaining honey, but we have every reason to congratulate ourselves and fellow-workers on the immense success that has crowned the efforts that have been made in that direction. There is now no difficulty, if the instructions to be found in our columns be followed, in ensuring a fair incoming of the coveted nectar during even unfavourable seasons, as may be proved by reference to the splendid exhibits at the various shows in 1875, which was one of the worst years on record for bee-keepers; and what may be done during a favourable year by those who have learned to cultivate their bees, will best be estimated by a knowledge of the fact that during the past year (1876) many skilled bee-keepers have achieved such vast results from their apiaries that their honey is 'a nuisance' to them—they began hoping to overcome the difficulty generally experienced in obtaining the delicacy, and, by following the principles advocated in our columns, have succeeded so greatly beyond their expectations that they are now in the opposite difficulty, and are clamouring for '*a ready means of getting rid of it.*' From almost every point of the compass comes the cry, 'What am I to do with my honey?'—a question which we trust will be solved in some way or other, or skilled experts will, we fear, give up the pursuit in disgust. Our work has been to show how to obtain it, and we are proud of the success that has been achieved. The British Bee-keepers' Association agreed at their first general meeting (see p. 105, vol. ii., *B. B. J.*) to show how to dispose of it, and we yet hope that that body will make a move in that direction.* In the meantime we hope our readers will do all in their power to further the object in view; we shall be glad of any suggestions from any and every one interested, and will give free and full publicity to any proposals that may tend to the desired result; and we trust that in the future, as in the past, our united labours will as a reward meet with the fullest Success!

MAY.

May, the proverbial merry month of swarms, has arrived, and excepting about a fortnight of 'March winds' in mid April, nothing has occurred to mar the hope that it will this year be true to its character. The exceedingly fine, open weather which prevailed during the earlier months of the year roused the activity of bees, and enabled them to take advantage of the early supplies which were thereby produced, and as a consequence stocks have attained such a state of forwardness as to be quite alarming, for drones, veritable normal drones, appeared in several localities during the month of March, raising in the minds of their owners dreadful visions of queenless stocks and fertile workers, which only the thorough examination of such colonies dispelled. In our own immediate neighbourhood flowers and blossoms have appeared at unusually early times, and birds as well as bees have, by the same genial cause been stimulated to early breeding. In this year of grace St. Valentine was undoubtedly

* Extract from published rules and regulations of the British Bee-keepers' Association:—

'VIII. That as soon, and so far as the funds of the Association will permit, the Committee will endeavour to carry out the objects of the Association, by means of lectures, meetings, the circulation of suitable books, certificating and sending out experts as qualified teachers and examiners of apiaries, exhibitions, and circulation of hives and apiarian apparatus, &c., to spread a knowledge of all improvements and best possible methods of bee-keeping, and of the most profitable use and disposal of bee produce; also to establish a model apiary and an apiarian museum and honey-market, assist in the formation of provincial clubs affiliated with the Association, and generally to do all in their power for the advancement of apiarian science.'

at his post, for on the 8th of April (ult.) a nest of five young robins took wing from our garden bank, and, during the easterly gales that about that date prevailed, several nests of young rooks were blown from the elms in the immediate neighbourhood, and perished. Those gales at the same time told heavily against the over-forward stocks, and many have been the complaints and inquiries as to the appearance of dead white bees on the hive's alighting-board.

Dead White Bees.—Stocks that from any cause have been induced to breed largely will as a rule be in considerable danger should even a short season of cold weather set in, for it not only then becomes necessary for the bees to crowd together for warmth, often to the neglect of their brood, but they speedily become aware that their expenditure of food is great, while the incoming is *nil*, and therefore the fiat goes forth to slay the young unhatched bees, that they may not grow to be *consumers* at a time when labour and ingathering are impossible. A sharp snap of cold weather, a frosty night in May, for instance, such as cuts off the cottager's scarlet-runners and blights his potato prospects, will often cause the brood near the edges of combs to be chilled to death, and in such case the bees will throw it out next day, and little harm will have occurred beyond; but when the white bees are thrown out through lack of income, much mischief will already have arisen, as prior to their appearance the eggs and young larvæ will have been consumed, and all the labour of feeding and nursing attendant thereon will have been wasted. Such a check to hives' prosperity should be guarded against and prevented.

Feeding in Bad Weather is the best preventive of the evils above pourtrayed, and should on all occasions be resorted to when the bees in the breeding season are prevented by rain or cold from obtaining an income from natural sources. In the case of swarms, which expend nearly the whole of their income in comb-building during the first two or three weeks of their existence, a check of the kind indicated will be most disastrous, as comb-building as well as breeding will cease, and the former will not be resumed until increased breeding or storing space becomes requisite, and then the chances will be in favour of the production of drone-comb.

Removal of Drone Comb.—Swarms usually build, in the first instance, as much worker-comb as they can well cover with bees; after which they build cells of both kinds in accordance with the incoming of honey. If such income be spare, they continue, as a rule, to build worker-cells in which to breed workers for the harvest, which instinct teaches them to expect; but if it be plentiful, they will build store (or drone) cells in which to secure it; and this will account for the outer combs of a hive being often of drone-cells only. Where such exist, or where the drone-cells preponderate, they should be cut out; and when fear of chill has passed, they should be placed in the centre of the brood-nest, the frames if empty being properly furnished with wax-guides, or, better still, with strips of worker-comb attached to the under side of the top bars, when, unless the incoming of honey be very great, worker-comb only will be built in them.

Queenless stocks should be united to weak stocks, or, better still, the bees of the former should have the combs of brood from which a swarm has been taken given to them on their own stand. Such swarm should consist of all the bees of a colony, and to these should be given the broodless combs of the queenless bees placed on the swarm's own stand. This mode of utilising queenless (and old) bees is far preferable to attempting to re-queen them,—a process attended with extreme danger to the queen, and of little service to the bees if successful, for, being *old bees*, they will not do sufficient nursing to render them useful, nursing being the province of the young ones,—a wise apportionment of labour which keeps them within the hive until they have gained strength to fit them for outdoor work. On the other hand, by giving the queenless bees the brood comb from the swarm, they will be able to keep up the temperature of the hive, and the hatching brood will take up and continue the nursing, and will raise queen-cells, which will do to supply other stocks from which artificial swarms are to be made.

It is hardly necessary to say that this process will be useless unless drones are likely to be in existence when the young queens will be due, a state of things easily ascertainable in hives built on the moveable comb principle. Further, we would suggest that the brood comb given to the queenless bees be of the best approved breed, so that the young queens produced may be of that character.

Débris from Hives, consisting of ragged chips of comb, pellets of hard pollen, and brownish dust turned out on to the alighting-board, are as a rule welcome signs of progress within the hive, showing that the bees are increasing, and are clearing out and freeing their cells of all disagreeable matters. Chips of comb and dust are sometimes the result of a victory by marauding bees, in which case the vanquished will either unite with the robbers or will have perished in defence of their home.

Robbing and Fighting should be prevented by every possible means. It seldom occurs between strong stocks, capable of defending themselves, but is usually carried on against

those weak and ill provided for, and is often induced by carelessness in feeding them. Spilling the syrup about the hive, or leaving the bottle uncovered so that strange bees have access to it, will often provoke the spirit of inquiry amongst foragers; and the scent from the outside inviting them, they soon find their way into the interior, and having once tasted the ill-defended stores, the destruction of the colony will be almost certain, unless the bee-master stop the warfare. All weak stocks should have their entrances almost closed, passage for the ingress and egress of two bees at a time being sufficient. To stop the warfare the safest measure is to exchange the positions of the offenders and the defenders. If the one be made to occupy the position of the other, and *vice versâ*, they will be completely nonplussed, and the robbing, as a rule, will cease. Brigandage amongst bees is very catching, and should be stayed as soon as observed, otherwise the sound of the warfare going on will enlist the sympathy (or love of plunder) in other stocks, and soon the whole apiary will be in commotion. Where it is not convenient to exchange the positions of the fighting stocks, the warfare may often be allayed by throwing a cloth sprinkled with carbolic acid over the hive, which will offend the aggressors, and keep the attacked at home. The cloth should be of sufficient size to hang well over the hive and below the entrance and floor-board.

Should this measure not deter the marauders, it will be necessary to remove the besieged hive to a dark cellar or cupboard for a few days, placing an empty hive on the stand in its stead, the effect of which will be, that the robbers, finding no treasure in the substituted hive, will discontinue their visits to it, and the hitherto besieged, having had respite from their assailants, will recover their tone and valour, and with ordinary care will be enabled to withstand further attack.

Examination of Stocks.—An immense amount of uncertainty and *bad luck* (?) would be avoided if beekeepers could be induced to make timely examination of their stocks, brushing and scraping away all dirt from floor-boards, and all traces of wax-moth from the bottom edges and coverings of hives, &c., and at the same time taking note of the condition of the respective colonies, and providing for their several possible contingencies. How much better it would be to become early aware of the necessity for feeding weak stocks than to have it forced upon the attention by any of the appearances hereinbefore indicated? And in instances where the colonies have too large a supply of food, and a consequent deficiency of breeding-space, how much better to be aware of the fact, and to stimulate their breeding propensity by unsealing a portion of their honey daily, and thus cause them to consume it, and create for themselves additional breeding room, rather than to stimulate them by giving them additional food, and perhaps over-crowding them with it. Early examination of stocks will often enable the bee-keeper to prevent the waste of a season, by preventing the production of useless drones. A drone-comb in the centre of the hive is almost fatal to its prosperity, either for swarming or honey-getting purposes, and should be removed before the bees either commence to breed in it, or are prevented by it from extending their brood-nest, for it will be a prevention indisputably until the colony has become sufficiently numerous to render the presence of drones desirable. Many beekeepers hesitate about examining their stocks, from a fear that by so doing they will injure them, but, excepting when clumsily done, and the combs get broken or damaged, the reverse is the case, and the bees are stimulated by the invasion.

COMMENCING AN APIARY.

Almost all advisers, particularly those of the old school, recommend that in commencing an apiary in spring it is best to purchase stocks of a former year, so that the profit and pleasure of their swarming may be experienced almost at the outset; but we most strongly advise that under no circumstances should an apiary be so commenced. In the first place, a beginner can scarcely be expected to know much of the age of a stock, and consequently may be deceived in that respect, having foisted upon him an old and valueless colony, whose only merit (?) consists in its weight, such weight being made up of thickened cells, old pollen, and propolis. A beginner is not likely to examine the interior of a colony very closely, and may be deceived in regard thereto; for instead of the combs being sweet and healthy, they may be affected with foul brood, which will cause the death of the colony, or they may be infested with the larvæ of the wax-moth, which will effectually prevent the colony's progress; and furthermore, the colony may be queenless, in which case the money paid will be simply given for nought, for without a queen a stock of bees in the hands of a novice is valueless.

Straw skeps are specially liable to the ravages of wax-moth larvæ, since they offer so many facilities for the deposition of eggs by the females, whose long ovipositors thrust them into the crevices at the bottom of, and around the hives, where they cannot be removed by the bees, and where when hatched into life they can find security until sufficiently strong to attack the combs. Foul brood being a

disease which attacks and destroys the brood in the cells, may exist in a skep without the owner (or vendor) of the same having the slightest idea of the fact; and consequently, even though dealing with a friend, in whom one has the greatest confidence, it is never certain that disease does not exist in the hive purchased.

When a stock is purchased it must be brought from a distance, and in transit the combs may be broken down, a possibility which often happens, and what could a beginner do in such a case? In commencing bee-keeping, our recommendation is, to purchase one or more swarms of bees (Ligurians, if not too expensive) in moveable comb hives, the frames of which have been properly adjusted, take them home on the evening of the day on which they were hived, and set them in the garden in a position where they will be sheltered as much as possible from the cold north and east winds, and from the rude bluster of westerly gales. A hive should stand on its own pedestal, of a foot or less in height; it should be sheltered from the heat and glare of the summer's sun, yet should be so situated that the sun's rays may at all other times impart their genial warmth to the structure, without shining directly into its entrance. Let it be facing the south, or south-east, perfectly level across the front, but raised about an inch at the back until the combs are built, when it may be set level.

On every day during which the bees of a swarm cannot gather from outside sources, and every night, food should be given to them through two, or at most three, small holes in a feeding-stage, until they have filled their hive with comb, and then—weather permitting—supers should be put on as elsewhere recommended.

HONEY-GETTING WITH THE EXTRACTOR.

Where honey is the object sought in bee-keeping, there can be no better or simpler method than that invented by Mr. Adam Grimm (an American cousin), and practised by his daughter, Miss Katie Grimm, who during twenty days, from twenty 'doubled stocks' took 3700 lbs. of pure honey. The method of doubling the stocks was, with a slight improvement, tried and proved last year by our esteemed friend and sometime correspondent R. Symington, Esq., of Market Harborough, who obtained considerably over a hundred pounds' weight from one so doubled.

The principle is thus:—Having two stocks, of similar dimensions and equally strong in bees and brood; when the honey-harvest is commencing make an artificial swarm from one of them, taking all the bees from it, and set it in a new hive, on its own stand. Take the combs (in their old hive) to the other stock and open the latter, removing such combs from it as contain drone-brood and honey, and fill up the hive with combs of worker-brood from No. 1, lay a sheet of adaptor zinc on the top of the hive (No. 2) and a quilt above, as a temporary measure, and proceed to extract all the honey from the remaining combs, and, shaving off the caps of the cells containing drone larvæ, shake the latter out on to the ground. Replace the combs in hive No. 1, and having removed the quilt from the zinc on No. 2, set them with the hive (No. 1) on the top, cover the latter, and, taking care that the entrance to the upper hive is open and free, leave them for the time being. There will thus be a brood-nest of worker-brood only in the lower hive, of great strength, supplemented by a considerable quantity of brood in the upper chamber, which will ensure the presence of bees and their adoption of it forthwith. There will be plenty of store-room also in the upper hive, to which the queen cannot gain admission through the zinc, and the population will so rapidly increase that in a few days, with fair weather, extracting may be renewed, and repeated, every third or fourth day. Any unslain drones that might be hatched in the upper box could make their exit by its open entrance, which affords a second flight-hole and entrance for the honey-gatherers. This method succeeds *well*—it yields more honey than can be procured by any other system, and leaves two strong stocks and an extra set of combs in the autumn, with the advantage that one of the stocks is a young one with sweet young combs.

DO BEES SLEEP?

Mr. Pettigrew asks the above question with numerous others pertaining to the subject, through the columns of a contemporary, and, although we have not made 'a study' of the matter, we fearlessly assert that bees *do* sleep, as we have many times shown to visitors. Why Mr. Pettigrew has not been able to discover them asleep when looking at them in unicomb glass hives we are not able to say, unless it be that they were hid away in cells which, being covered by wakeful moving bees, were not to be seen. It can scarcely be expected either that bees would long remain asleep in hives into which smoke had been blown, or from which a crown-board had been *wrenched*, or from which a frame of comb had been '*raised*,' at the great expense of life and limb to the unfortunate bees that were subject to the 'mangling done' on

both sides of it. Nor can it be expected that bees could be seen asleep in the beloved straw skep, although Mr. Pettigrew professes to be able to look down the alleys between the combs, and see the eggs in the cells, because it must first be turned over, and the bees driven from between the combs, an operation which would awaken them if they were asleep, and cause confusion by sending hundreds head first into their cells, as is the custom when bees are alarmed.

But if Mr. Pettigrew will take a hive of the best construction, occupied by pure Ligurian bees of gentle breed, that need no smoker to quiet them, and gently lifting off the quilt, will remove the side dummy or false wall of the hive, and, without any jarring (for none is necessary in the hive we are supposing), part and lift the frames *seriatim*, he will readily find the object of his search at almost any time of the day, and at almost any time of the year.

As before stated, we have not made a study of the subject, but have many times observed the fact, groups of bees packed into cells otherwise quite empty, lying, as a rule, on their right wings, perfectly motionless, and with the end of the abdomen protruding just as bees are found during the 'sleep of death' which arises from cold in winter. We have, on many occasions, after examining the combs, returned them still asleep, but often the counterfeit of death has been so striking that we have touched them, and caused them to awake, and have been greatly amused at their puzzled look when they have crept from their beds into broad daylight.

THE CHALLENGE TO MR. PETTIGREW.

We have received a 'private' letter from Mr. Pettigrew in which he declines to enter the lists with us in the trial of hives and bees proposed by us in last month's *Journal* in reply to his absurd challenge in the *Journal of Horticulture* of a week or two previously. We could have been better pleased with a public reply, but, as none has been vouchsafed, we hold he has lost his position, and hope in future he will not disturb the public peace by firing 'blank cartridge.'—Ed. *B. B. J.*

SUPERING.

When swarms are not desired it is usual to place supers on the hives for the purpose of preventing them, and in that case they should be put on before the colony becomes uncomfortably populous, or the swarming idea will be generated, and then, as preventions, they will be too late.

The right time to super hives is when they are filled with combs, which should contain brood in all stages of development, have large populations of worker-bees, and when the ingathering from the orchards and fields is in excess of the daily wants of the hive. These conditions imply that the weather is then congenial to the prosperity of the bees and, therefore, any observations thereon will be unnecessary, but bearing in mind the question involved in the opening paragraph of this article. It should be remembered that the placing on of supers permits the escape of much heat from the brood-nest into them, and the state of the weather in such cases will, therefore, be worthy of consideration.

Prior to the putting on of the supers, and, as it were, to force the bees to take possession of, and commence comb-building in them, it would be advisable to open the hive and slice off all the seals from the honey-cells,—a process which will ensure that nearly every bee in the hive will gorge itself with the exposed honey, and will necessarily want some other place to store it in; but (supposing the time to be ripe) every other cell will be filled with eggs or brood, and the gorged bees will perforce (almost) be compelled to ascend to the supers and build cells in which to redeposit it after they have removed it.

The kind of super to be used has been so often discussed, and with such careful appreciation of the respective merits of all that have been brought before the bee-keeping world, that we think the public (the bee-keeping public we mean) will endorse our opinion that sectional supers will be, to use a term well understood, *the supers of the future*, and therefore should be adopted for present use.

Bell-glasses are things of the past, and, having regard to their coldness, the difficulty the bees have in attaching themselves to them for comb-building purposes, their non-ventilating properties, their liability to breakage, and the consequent danger to which they are liable in their transit from place to place, we think they may be considered 'discarded.' The small straw skep-super being a thing that cannot be conveniently packed, is not firm at its sides, and cannot be divided, may also be considered ineligible.

It may please a certain class of bee-keepers to produce huge 'Crystal Palaces' of honey-comb, to form ornaments for reception-halls, but we prefer the adoption of such receptacles for honey-comb as can be obtained at a minimum of cost yet with a maximum of conveniences.

The sectional system of supering enables its votaries to give to a stock a super-space consistent with its recognised requirements,

capable at the same time of modification to an almost illimitable extent; the honey stored in them will be in cases of the handiest possible description, and of any and every convenient size; and, where used as separate sections, they can be removed *seriatim* as soon as they are filled and fresh ones put in their places, or those remaining can be closed up to form a super of reduced size, and requiring fewer bees to maintain heat within it,—a quality most desirable in a super at a late period of the harvest.

ARRANGEMENT OF SHOWS.

We shall esteem it a favour—and it will doubtless be agreeable to all those contemplating the introduction of Apiculture in any form as an addendum to Agricultural and Horticultural Shows, or otherwise—if secretaries will forward for publication the dates fixed upon for holding their meetings. We have no selfish motive in making this suggestion, but think it will be a boon to bee-keepers generally to find in a column devoted to the purpose a full list of them, and to secretaries and committees it would be a great help and a free advertisement. The following are fixtures for Bee and Honey Shows for 1877:—

Aug. 7.—Crawley and Ifield, Sussex.
„ 15, 16.—Salop, Shropshire.
„ 23.—Dorchester, Dorset.
„ 29.—Sherborne, Dorset.
„ 30, 31, and Sept. 1.—East of Scotland, Dundee.

Secretaries, please forward early intimation of fixtures for coming Shows.

AGENCIES FOR HIVES.

We have this year been many times solicited to grant special terms to agents in various localities, that they might with profit to themselves sell our hives and bee-furniture; but in every case we have been compelled to decline to do so, on the ground that our prices are so low, and the profits so small, that a division of the latter is impossible. The manufacture and sale of hives, &c., is a free trade, open to all; and those who wish to start in the business can have correct patterns forwarded to them at the prices named in Catalogue, and may do their best at the work without fear of offence. If they make hives of our patterns to sell them in their own neighbourhoods, they will be advancing the interests of bee-culture by introducing them (in many instances) where the costs of transit prevent their adoption, and we have little fear that such a course will affect our firm injuriously. We do not quite agree that it is right for hive-makers to copy our hives and call them by their own names, but there is a crumb of comfort in the knowledge that they will sell but few of them!

SOMERSET.

Arrangements have been made by the West of England Apiarian Society for holding their second annual exhibition in the Vivary Park, Taunton, on the same day as the Horticultural Society's show, when, according to the preliminary circular, 'valuable prizes will be offered for honey, bee-hives, &c., and there will be an extensive show of bee furniture, foreign bees, bees at work, and interesting manipulations.' Mr. C. Lewis, Fore Street, Taunton, is acting as local honorary secretary.

THE DORCHESTER BEE AND HONEY SHOW.

The Dorchester Bee and Honey Show is fixed for Thursday, August 23rd, and the one at Sherborne for Wednesday, the 29th. At each place prizes to the amount of 20*l.* will be offered. The programmes include best collections of hives and apicultural requisites; best and cheapest extractors and bar-frame hives, observatories, skeps, &c., as well as largest harvests of honey, heaviest supers, &c. Mr. C. E. Norton, Shaftesbury, is the secretary for the county; and Mr. M. H. Tilley, 46 South Street, Dorchester, is the local honorary secretary for the Dorchester district. With a good working committee, and supporters scattered all over the county, all promises well for excellent shows. The local journals are backing up the society in the most friendly fashion.

We extract the following from the *Dorset County Chronicle*:—

'A bee and honey show will in all probability be held here (Dorchester) in August next in connexion with the annual exhibition of the Dorchester Horticultural Society. Members of the Dorset Bee-keepers' Association have offered to give 15*l.* for prizes, provided the committee of the Horticultural Society add 5*l.* more. This offer has been accepted by the honorary secretary (Mr. Pope), subject to the approval of the executive. A similar show was held at Sherborne last year, and although the amount offered for prizes was very small, and the weather was miserably wet, hundreds of persons paid for admission, and expressed their satisfaction with what they saw. The aim of the British Bee-keepers' Association and its Dorsetshire off-shoot is gradually to introduce a better class of hives than the old straw skep—hives in which the bees can be managed with the greatest ease, and from which the honey can be taken at any time without destroying the bees. The Dorchester show will be an excellent means of introducing such hives and other modern apicultural apparatus to local bee-keepers, and will thus assist in increasing the number of those who manage their bees on the humane principle.'

We also extract from the *Sherborne Journal* the following practical remarks and seasonable hints:—

The Dorsetshire Bee-keepers' Association, which owes its origin to the success of the Bee and Honey Show held at Sherborne last year, has commenced its first season with vigour. As we announced in a recent issue,

there is to be another exhibition of honey, hives, &c., in connexion with the Sherborne Flower Show, when prizes to the amount of 20*l.* will be offered. This set the bee-keepers in the southern portion of the county on the move: and the result has been that they have arranged to hold a similar Show, with an equally liberal programme, in connexion with the next Exhibition of the the Dorchester Horticultural Society in August next. The aim of the Association is 'the encouragement, improvement, and advancement of bee-culture in the county, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes,' and a large number of the principal residents in Dorset have already added their names to the list of subscribers. Indeed, when the work of the Association becomes generally known there can be little doubt that it will be most liberally supported. Those who know anything about modern bee-keeping will readily admit that it has many advantages over the old grope-in-the-dark system. The interior of the skep was a kind of *terra incognita* to most bee-keepers; but with a bar-frame hive the condition of a stock can be ascertained at any moment, as every comb can be removed from the box in which it is placed as readily as a window can be lifted up. This enables the owner to ascertain when his bees have more honey in store than they require, in which case he can run it from the cells in five minutes by means of the Extractor, and replace the combs to be filled again. Honey of the best quality is thus obtained, because it is free from the pollen which bees store in many of their cells, and from the admixture of squashed brood (young and tender bees), &c., which too often thicken and spoil the nectar when it is squeezed or melted from the combs in the old-fashioned way. Nor are these all the advantages. Huber, Bevan, Langstroth, and other eminent apiarians, tell us that bees consume from 16 lbs. to 20 lbs. of honey in making a single lb. of wax; so that the destruction of comb is a most absurd and wasteful process, and any plan by which it can be saved is worthy of careful consideration if only on the ground of mere economy. But the humanitarian element cannot be left out, as we intimated in our report of the Sherborne Show, already referred to. Surely it must strike every thoughtful person that it is cruel in the extreme to take the lives of thousands of interesting, active, and wonderful little insects which have laboured hard for the benefit of their owners all through the spring and summer months, especially when such wholesale slaughter is needless. The objects of the Dorsetshire Bee-keepers' Association, then, are:—1st, to introduce a more rational and humane mode of bee-culture amongst all classes of the community who are in a position to keep bees. 2nd, to show them how to obtain the largest quantity of honey, and that, too, of the finest quality, with the least expenditure of money, time, and labour. 3rd, to induce the cottagers of the county who have not already embarked in bee-keeping to place stocks in their gardens, in order that the myriad flowers which now literally 'waste their sweetness on the desert air' may be rifled for the benefit of man. 'But, then, bees sting so dreadfully,' we hear nervous readers say. True, nature has given them weapons with which to protect the fruits of their labours; and, but for the dread of sting, the number of bee-keepers would probably have increased a hundredfold. This difficulty can, however, easily be overcome by the use of a veil of black or green net, so made that it forms a kind of bottomless bag. If a piece of elastic is run in at each end it can be slipped over the hat in a minute and fastened round the neck. A pair of thick garden gloves will be ample protection for the hands, if they are tied round the wrists, or secured by a band of brown elastic. Thus equipped, the amateur apiarian can fearlessly face the most savage bees.

Seasonable Hints.—The success of the bee-keepers' year depends, to a considerable extent, upon the course he adopts during the month of April. If he gets everything ready for the merry month of May all will probably go well; but, if the trees are in blossom and the bees are swarming before he has his spare hives, stands, supers, and other requisites in order, disappointment and a bad honey harvest will probably be his reward. Those who have not attended to the hints given a week or two ago must do so at once. Weak stocks should be slowly, but regularly, fed until all fear of starvation is past. It is well to remember that it will be some weeks yet before they will be able to gather sufficient food to satisfy the demands of the rapidly-increasing population. A little attention now will be amply repaid. Those who have hives with holes in the crowns should feed under the supers. Excellent syrup can be made by boiling 3 lbs. of sugar in a pint of water. Pour in half a wine-glass of vinegar, and take the liquid from the fire as soon as it boils. When it is cold fill a pickle-bottle with the food, tie a piece of cardboard, or zinc, in which two or three fine holes have been bored, firmly over the mouth, and turn the bottle upside down over the feed-hole. Look at it occasionally to see that the food is being regularly and steadily taken. If it ceases to flow, clear out the holes; and if it is taken too fast stop one or more up. The quantity of syrup named above should last a single stock a month. If bees are fed rapidly they store honey in cells which the queen may require for breeding purposes; but if food is given slowly this evil is avoided. Remember where feeding is begun it must be continued until the flowers are ready to supply your stocks with nectar.

TO OUR AMERICAN COUSINS.

We should be exceedingly glad if some kind of agency could be established by which our *Journals* could be sent in bulk, for distribution on arrival. Under present circumstances, not more than three out of five of the *Journals* sent from here reach their destination in America, and the irregularity the other way is nearly as bad. Cannot some plan be devised to remedy this very unpleasant state of things?—Ed. *B. B. J.*

WELCOME TO THE BEE.

Come, honey bee, with thy busy hum,
To the fragrant tufts of the wild thyme come,
And sip the sweet dew from the cowslip's head,
From the lily's bell and the violet's bed.
Come, honey-bee,
There is spread for thee.
A rich repast in wood and field;
And a thousand flowers,
Within our bowers,
To thee their sweetest essence yield.

Come, honey-bee, to our woodlands come;
There's a lesson for us in thy busy hum:
Thou hast treasure in store in the hawthorn's wreath,
In the golden broom and the purple heath;
And flowers less fair
That scent the air,
Like pleasant friends, drop balm for thee,
And thou winnest spoil
By thy daily toil,
Thou patient, and thrifty, and diligent bee.

We may learn from the bee the wise man's lore,
'The hand of the diligent gathereth store;'
She plies in her calling from morn till night,
Nor tires in her labour, nor flags in her flight:
From numberless blossoms of every hue,
She gathers the nectar and sips the dew.
Then homeward she speeds
O'er the fragrant meads,
And she hums, as she goes, her thankful lay:
Let our thanks, too, arise
For our daily supplies,
As homeward and heavenward we haste on our way.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE APIARY, KING'S SOMBORNE, HANTS.

As I have been asked by several of your subscribers in your *Journal*, and also through the post, to give a description of 'The Great Hampshire Bee Farm,' the hive used in it, &c., I send you the following to insert in the *Journal*, if you can kindly find space for it.

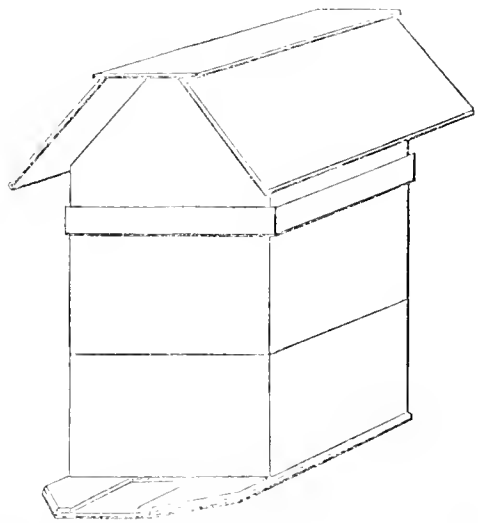
The Great Apiary, King's Somborne, Hants, is three miles from Stockbridge, the nearest railway station being Horsebridge. The bees are kept in a meadow which has a gentle slope from north to south. A running stream of pure water runs from east to west, about 200 yards from the bottom of the meadow.

The 'Sailor's Bee-Hive' is the only bar-framer used. The hives are placed in lines of thirty-two each, the lines running due east and west, and face due south. Each hive is placed three feet from its neighbour, the lines being eight feet apart.

The general line of flight is S.S.E., but this greatly depends on the time of year.

We do not plant anything special for the bees, as we have large fruit and flower-gardens close to us: lime-trees in abundance; hedges of hawthorn, blackthorn, and privet, and plenty of flowering ivy in the autumn. We have fields of mustard, vetches, and clover, all round and about. Our first great harvest of honey is made from sainfoin, of which we have some thousand acres around us. We do not cultivate much honey in the comb, only having disposed of a few hundredweights; there is far more trouble attached to it, and far less sale and profit, than in run honey. Regular customers in run honey pay very much better, and there is no destruction of comb, which is the secret of honey-getting.

Stock-boxes and super-boxes are exactly the same size; the bars from any one will fit any other hive or super; each box will answer for either purpose, the entrance for bees being cut in the floor-board. The bars rest on wooden battens inside the hive, having space above them of half an inch for the quilts (cheese-cloth and house-flannel), which, when properly placed in, the wind cannot catch and blow the corners up, which saves considerable time and trouble on windy days when feeding from the top. This half-inch space is completely filled up when supering by the adapting-board, which rests on a ¼-inch batten, ⅝ wide, thereby giving a quarter-inch space between the top of bars and under-side of adapting-board. The adapting-board is flush with top of stock-hive. The roof has a flat top, and will answer well for a table when manipulating, and has ample room in it for bottle-feeding and for sectional supers. Ventilation holes, at each end, can be opened and shut at pleasure,—a great advantage in feeding-time, as it allows the stray bees to depart.



We do very little bottle-feeding, unless in cases of buying weak stocks from cottagers.

In the early spring we keep our bees well supplied with sugar syrup mixed thick with tea leaves, which gives the bees standing space, placed in very shallow milk-pans side by side with cheese-boxes filled with red deal shavings, upon which a liberal supply of pea-flour is sprinkled. Later on, when other people's bees are about, we only put the syrup out in the evening and on wet days. The pans are placed five feet in front of hives. The tea-leaves are never wasted; all through the summer they are kept filled up with water, and every day and all day will be seen constantly used by the bees, the pans having often to be filled twice in a day. The pans and cheese-boxes are kept covered by pans reversed over them in rainy, windy, or very hot weather; but, as they do not fit close, the bees get in all round, and work quite as fast under the shelter.

The hives are placed low down, so that bees returning laden come down-hill, as it were.

In supering hives we invariably introduce a bar of comb, brood and honey, from another stock, if possible; if not, from the to-be-supered stock, replacing with an empty bar. In the latter case the first work of the bees is to fill up the empty bar in stock-box, for which they will bring all the honey down from the bar in super. In the former they will take possession of the new bar, and commence work immediately in super. Care must be taken to leave no queen or queen-cells in super. In cases where it is desired to keep the honey in the comb for sale, the bar introduced is changed for a clean bar, and used in swarming or supering.

The great secret of honey-getting is in being able to fill up supers in the season with bars of comb old enough to stand slinging; by this means not a minute is wasted, and honey continues flowing in. It can be taken at any time without disturbing the stock-hive. The amount of honey bees will bring

in during a day when the sainfoin is in full bloom is truly surprising. One hive alone in this place has produced ten, twelve, and fifteen pounds in three successive days. Many people have wondered how we can get so much honey from our bees. The above is the secret, but this can only be done when stock and super are exactly alike.

Last year we purchased twenty stocks in straw from some people emigrating. We devoted these to the capsizing principle. In every case where comb was given in the super the bees filled it with honey. In each case they swarmed once; in each case they reversed the internal structure of stock (upside-down comb), a great loss of time and labour. In each case where no comb was given no work was done in the super; but the internal structure had been reversed, and very little honey was found. In September we finish up taking honey from stocks.

We took five bars of comb and honey from eighteen stock-boxes, no brood; placed them in empty stock-boxes with an empty bar between each bar of comb, and transferred the capsized bees into them, utterly destroyed the straw hives, and boiled the comb down.

We do not like transferring from straw to wood; we have almost always found the wax-moth introduced in the comb.—P. E. MARTIN, *Proprietor and Manager, The Apiary, King's Somborne, Hants.*

THE ITALIAN ALP BEE.

In the pages of the *Journal of Horticulture*, which so interestingly record 'A Devonshire Bee-keeper's' early aspirations to possess the *Apis Ligustica;* its arrival in England, on the 3rd August, 1859; its dissemination from the Devon apiary of the late Mr. T. W. Woodbury all over the United Kingdom, and even to the antipodes; the good character borne to the new-comer from far and near;—to the advanced apiarian, familiar with all this, it must seem a work of supererogation, some fifteen years after, to begin to rewrite that good character; but, unfortunately,

'Old times are changed, old manners gone,'

and a new school of apiculture has arisen in the interim which openly teaches retrogression. The 'big straw skep,' the 'boxes from the grocer's shop,' with the *noli-me-tangere* system of bee-management, are pronounced the acme of perfection. It is so blinded by prejudice that up to this hour it has refused to give the Italian a trial; so ignorant of the natural history of the honey-bee as not to perceive the flood of light the introduction of the yellow-jacket let in on the longevity of the workers, the distance to which they fly to forage, at which the queen-bee mates, and to which drone influence extends—sufficient of itself to cause the name of Woodbury, their introducer, to descend to latest posterity; while these same parties try to degrade that honoured name by insinuating that his work was prompted by mere mercenary motives, that the Italian is best only to sell, and lower still would they degrade him—even to the lowest type of the dishonest dealer, known by an abominable name my pen refuses to write. And now that the bubble has, according to them, burst, they keep calling for competitive tests of their value, which every intelligent bee-keeper has tested for himself ever so long ago, and which they, by the expenditure of a few shillings for a queen, can satisfy themselves of at any time. Such self-evident lack of enterprise has hitherto met with the silent contempt it so justly merited. Loud as has been the call, 'Where is the superiority of the Italian?' Echo has only answered, 'Where?' Emboldened by the silence, one of that party—a correspondent of the above periodical, bearing the initials 'W. A. C.'—presumes to answer it by a reputed conversation with no less an authority than the late Mr. Woodbury himself, that but for gentleness the Italians were no whit superior to the old aborigines. When matters have reached this climax it behoves some one to come forward, in respect for the memory of the dead, to refute such a misleading assertion; and as one of Mr. Woodbury's original subscribers for the propagation of the Italians, I can very easily set that question for ever at rest by quoting the following paragraph from page 18 of the treatise, *Bees and Bee-keeping*, by T. W. Woodbury:—

'The foregoing facts speak for themselves; but as information on this point has been very generally asked, I have no hesitation in saying that I believe the Ligurian honey-bee infinitely superior in every respect to the only species that we have hitherto been acquainted with.'

Whatever value my testimony on this subject may possess, it is at least disinterested, as I never have imported an Italian queen for sale. My sympathies, too, at first were rather against the foreigner, though not to the extent of refusing to give it a fair trial. And did it come and at once conquer? Anything but that. My first received stock was weakened to the lowest ebb from foul-brood before Mr. Woodbury had discovered the cause of his 'dwindling apiary;' and at his suggestion it was attempted to be strengthened by interchanging frames of brood from my own healthy stocks, thereby contaminating them hopelessly, and reducing me to hopeless bankruptcy in the bee way. A second stock was procured to Italianise. My fresh start, healthful at first, was soon attacked by the fell destroyer, and through it my apiary was again totally swept away. Mr. Woodbury could only account for the new mishap on the supposition that a neighbour's bees had robbed mine when weakened through first visitation, and they in turn became helpless to resist the well-known thieving propensities of the yellow-jackets of the second stock, and so brought back to my apiary anew the bee plague. An entirely fresh stock of bees and hives were once more purchased, with a third Italian stock from Devonshire, and all then went well. Such were the unhappy auspices under which the new bee came, and after passing through so fiery an ordeal, sufficient to damp the ardour of many a one, my opinion of its value may be best drawn from the fact that I cannot charge my memory with the number of years since a black bee has been bred in my apiary.

After careful study and comparison of both, I found the Italian superior for beauty, prolificness, power, and activity, and (to my view the greatest

value of all) for *fresh blood*. I will proceed to take a look at the several points in their order:—

1st. *Beauty.*—No one who has seen an Italian bee, I presume, doubts this; set an Italian and a black side by side on a window-pane, or compare them on a landing-board, and one can see it at a glance; and the bee-keeper who has never witnessed a flight of young yellow jackets disporting themselves with firefly radiance amongst their more sombre sisters in the clear, bright sunshine of a spring day, has a sight yet in store for him.

2nd. *Prolificness* is a point as difficult to gainsay as the former, to the bee-keeper familiar with the rapidity with which masses of brood are squared off in frames. I need not go into this further than refer to the first stock of these bees which reached Scotland and multiplied itself into *seven*, having thrown three swarms, the first of which swarmed once, and the second twice, the last weighed 4 lbs.; of which Mr. Woodbury said, 'So rapid a rate of increase is stated to be unparalleled in the history of Scottish bee-keeping.'

3rd. *Power.*—That the blacks go down before them is indeed unquestionable. How many a painful instance rises to the mind's eye of the utter destruction to which neighbours' apiaries were subjected from the expertness with which the Italians could poniard the blacks! How disagreeable on meeting a bee-keeper half a mile off, and on asking how it fared with his stock, to be told that on raising his skeps an evening or two before to replenish the soup plates underneath with food, he was struck with their extreme lightness; the plates, alas! filled with his defunct bees, with an odd Italian here and there among the masses slain, to show who had been the assailants and victors. Even more disagreeable, one morning at our station, assisting a married lady of my acquaintance from her carriage, residing a mile from my apiary, to feel the hand of her husband on my shoulder with the expression, 'This lady is going to have an action for damages against you.' 'For what?' is asked. 'She had a splendid apiary of bees, but those yellow scoundrels of yours did the unneighbourly trick of calling the other day and despatching them totally, and she is now bee-less.' What could I say but express the poignancy of my regret; that the action would have to be compromised by my sending up a handsome super comb, and suggesting that for the time to come they could well afford to keep the Italian in self-defence?

4th. *Activity.*—Anyone possessing Italians must be struck with their quick, agile movements as compared with the blacks. They are first on the wing, first to scent the new flower, and first to alight on the treasure trove; indeed, I early formed the opinion that our Northern regions are more congenial, more in keeping with their Alpine home, when M. Hermann states they thrive at an altitude of 4500 feet above sea-level, and in the warmer south of Italy are not to be found. A leading farmer of our county's 'better half,' on a recent poor season, at their exhibition produced the premier super from an Italian stock, and her husband was interrogated, 'Did he consider it due to the superiority of the harvesters?' His reply was, He knew nothing of bees; in short, gave them as wide a berth as possible; but one thing he would vouch for, the yellow fellows were first out on his fields in the mornings; the early bird caught the worm; he supposed that was 'about it.'

5th. *Fresh Blood.*—Before going into this point I may as well fill in here the shadows of the picture, and state wherein the Italians prove disappointing. According to M. Hermann's description they were very much larger; to my eye the pure-bred Italian always seemed a sharper ended, lesser insect than the black. Again, I was led to believe they were wonderfully gentle, almost queenly in their aversion to sting; let alone, they *are* very harmless, and, personally, they and I have always lived together on the best of terms, possibly on the principle that the fiery colt knows his master; but I have had experienced assistants who could only be induced to approach them with fear and trembling, and they showed the utmost discrimination in their attention to these parties. They would decidedly pronounce them much quicker-tempered than our old sable friends; the lumbering black leisurely circles the head, in first instance, to make observations, while the Italian strikes right out; and when once war is declared, the latter makes by far the most implacable foe: the cross breed in particular are much more irascible than the pure breed of either variety. In illustration, shortly after getting in a full stock I remember receiving an amusing petition, couched in witty, well-measured verse, to inspect the foreigners, from a deputation of the bee-keepers of a village in our district, whose weaving population are of sufficient intellectual calibre to educate by 'heckling' an honourable and gallant M.P. into the belief, on his own confession, that he was proposing to sit on the wrong side of the House. Liberty was, of course, granted, a day fixed, and the deputation duly arrived; a proffer of veils all round was made, with the hint that the Italian could use the stiletto, but respectfully declined with the remark, 'We're a' auld hauns at the trade and hae na need of thae things.' The inspection proceeded; the Italians were enthusiastically admired; shrewd were the remarks passed and keen the criticism on everything; and the bee-master, of course, duly 'heckled.' The dove-tailing of the boxes composing a strong cross-bred colony were rather closely examined, a sortie took place: the deputation backed out of the walk, from the walk retired in good order behind a yew hedge from my view, and ominous was the rapidity with which detachment after detachment were told off, mobilising in a cloud over the aforesaid hedge on poised wing, as hawks, before swooping down on their prey. As worker after worker darted out of sight hard hats were heard to crack on the gravel, heavy feet seemed to be treading the mazes of the war-dance; at last, in an audible whisper, I heard one say to another, 'Eh, mon, bit they stang deevilitch,' followed by a general stampede from the garden. After putting things to rights I found the 'auld hauns' snugly ensconced underneath the shade of some of our old limes, busily employed picking each other's craniums monkey fashion, and was greeted with the remark, if we kept such bees 'in oor town we would be drummed oot o 't.' But I told them I generally consoled myself with the remembrance of the sound advice tendered

in novitiate days by my old preceptor, 'Aye buy the wicked skep, the're by far the best honey gatherers,' which axiom I had found amply verified.

The last and greatest disappointment of all was the utter failure to breed the Italians pure. This I dreaded from the first, and when Mr. Woodbury proposed, in the kindest and most fraternal manner, to breed and despatch Italian queens to his subscribers all over the country at a merely nominal charge, I asked both publicly, as well as privately, how he was to preserve such young queens from the drone influence of other apiaries; and on his replying, by isolating the Italians a full mile from other bees, I foretold the shipwreck of the adventure, which was too literally fulfilled, having stood watch in hand for from fifteen to twenty minutes years before awaiting the return of absent princesses on their mating tours, and at the rate of speed with which they set out, calculated the distance traversed must have far exceeded a mile. I would here pause to refer to an article on 'Breeding Bees,' which appeared at page 361, No. 788, *Journal of Horticulture*, bearing the initials 'A. P.,' presumably those of Mr. Pettigrew, wherein the reader is informed, 'The conduct of both bees and drones in every hive indicates that in-and-in breeding is a law amongst them, not an exception!' I really thought the merest tyro in bee-keeping knew full well that the bee is anything but inter-bred. In the first volume of above *Journal* I referred to cases of parties keeping bees in good localities, far isolated from others, doing well at first, and gradually and unaccountably dwindling away till they became extinct. A fresh stock procured again flourish remarkably, and in the course of a few years again dwindle away; and always point out to stock-owning and poultry-keeping friends how nature guards against the evils attendant on breeding from near affinities in the honey-bee. Did the young queen mate *within* the hive, she must inevitably pair with full brothers; did she indulge in but a short flight over her own apiary, probably with cousins nearer or more distantly removed. But to avoid all this she is impelled to a far flight through ether for that indispensable change of blood. Confirmatory of this, it is rather humiliating to make the confession, but the truth must be told, and although it is at all times more pleasing to chronicle success than failure, from a scientific point of view the one is equally valuable with the other—with a well-stocked apiary of strong colonies, with pure-bred Italian queens by mother's side, and consequently, clouds of equally pure drones, through all these years I only *once* managed to secure pure impregnation; and that was in the case of a queen hatched early in spring, presumably fertilised by the Italian drones, the progeny, if I remember, of a drone-breeding queen, long before any black drones appeared in our district. As a set-off for my disappointment in utterly failing to rear pure-bred Italians, I made the invaluable discovery that the first cross (I am always most particular to keep all young queens such, and avoid their degeneracy into mongrels) bred from the Italian queen, mated with the black drone, was a larger, more powerful, more industrious, and consequently, far better honey-gathering insect than the pure of either variety.

The potency of the spell exercised by the first cross is apparent in larger stock than our favourites; for instance, we do not depend for the beef and mutton supply wherewith to feed the teeming masses of our population, on either the high-bred shorthorn or Leicester, but to their crosses, and every poultry-keeper knows it is not his pure-bred fowls but the first cross which fill the egg-basket.

From what I have written it may be supposed that the prowess of the Italian in love cannot be maintained equally as in war, but such is far from the case. Although the agile Italian princesses seem to outstrip in flight their lazier drones, and seek alliance with the dark sons of the land, the Italian is equally the favoured swain with the native brunettes. In a radius of from one to close on five miles from my apiary crosses from the reversed parentage abound, and the humble cottager points with honest pride to his 'striped bees,' and the value of such crosses on that side are so much appreciated for prolificness and industry, that in their disposal the extent and distinctness of the banding are carefully appraised. Possessing the Italian bees first, and for many years alone in our county, I was always much interested to meet and compare the distance to which their influence extended; the first case occurred under two miles, as the crow flies, and I came upon it accidentally. An aged bee-master, showing me round his flower-garden, asked my opinion as to the feasibility of preserving alive a most diminutive third swarm he had hired in a very large dome-shaped skep, no other being at the moment to be had. On turning it up, he found the tiny lot ensconced in an upper corner of their inappropriate dwelling. I told him the experiment was worth trying, seeing they were good crosses from our drones. My old friend was much delighted, and adjusted his spectacles to examine them, saying they should not perish for want. Ten months passed ere we met again and I asked for the crosses. He told me he had mentioned the circumstance to his bee authority, an old master gardener of our county town, who coolly told him he was hoaxed; but he stuck to his resolution to feed, and, 'What do you think,' he added, 'they lived, filled the monster skep, and then two splendid swarms before any of the blacks began; the first had then a beautiful glass ready to comb; he had never met with such bees.' My old friend for years has slept beneath the sod. His sons carefully preserve alone the descendants of the little third.

On a hot summer afternoon, a season or two after the above, I received a visit from a stranger, who introduced himself as a bee-keeper of thirty to forty years' standing; he had been sent by a mutual medical friend to show me to him a most remarkable phenomenon—some yellow striped bees, which had appeared in two of his (my visitor's) skeps, and with this produced a vial sample of the bees. I told him they were well-marked crosses from our Italian drones; he raised his hat, and while he wiped the perspiration from his brow, told me he had travelled here between seven and eight miles, and, with all due deference to my superior knowledge, could not believe it. I invited my sceptical brother in; unrolled the Ordnance Survey map of our county, caused him to point out the

place of his abode; with a pair of compasses I measured the distance, and applied it to scale, and showed him instead of being seven or eight we were barely five miles apart bee-line; he acknowledged that lessened it considerably: 'Still he could not believe that his queens would fly nearly five miles to meet my drones.' 'Neither do I wish you to go away with any such impression,' I replied. 'Cannot you conceive, as in many love affairs, the probability of "a meeting half road?"' He gave in his adhesion at once. The crosses accomplished such feats that he went in for pure Italians the following season.

Two seasons ago a parish clergyman of my acquaintance, a cautious and most successful apiarian, astonished all his neighbours by hiving a swarm on 15th May, three weeks before our usual beginning of the season. I looked in to see the prize, and as I half suspected found it peopled with first crosses, my clerical friend was so impressed with their value that he is now engaged Italianizing his entire apiary.

To dilate further, with other illustrations of the value of the Italian for fresh blood and large honey results, would appear to the experienced bee-keeper but an unnecessary occupation of space. As a rule, seeing that bees cannot be bred pure by one individual in a district, I would not recommend any one to attempt to keep up a stock of pure-bred bees, in the hope of being remunerated for his trouble and expense in importing, but I am as decidedly of opinion that even the poorest cottager would be handsomely repaid for purchasing an Italian queen, and placing her daughters at the head of every stock in his apiary.—A Renfrewshire Bee-keeper.

DO ITALIAN BEES GATHER MUCH MORE HONEY THAN ENGLISH BEES?

There must be many readers of the *Bee Journal* who would be glad to see some records, clear, full, and exact, of the comparative honey-gathering powers of English and Italian bees, in similar hives standing at the same time in one apiary. A few statements of facts and figures by impartial and unprejudiced bee-keepers would do more to dispel the doubts of the incredulous than any number of simple assertions to the effect that the superiority of the Italians is almost universally acknowledged by scientific apiarians. It is to be hoped that many bee-dealers are prepared to give a good reason for their faith in the superior honey-gathering power of the Italian bee. I believe no satisfactory record of the kind has been published in any English periodical or bee-book.—J. H. Eldridge.

BEE-KEEPING IN INDIA.

I must thank Mr. Watson for the information he kindly gave me through the columns of the *British Bee Journal* with regard to Indian apiculture. I should be very glad to hear anything further he or others could tell me on this subject. I especially wish to know one thing: that is, which of the many kinds of bees which exist in India is the one which produces edible honey? The last letter from my friend in India brought some hopeful news. A swarm of bees, the day before he wrote, had entered the room in which he was sitting; he was in nowise prepared for them, but he procured a box and put them into it; they seemed all right when he wrote. These bees were very *small* and quiet; they were not larger than blue-bottle flies. Can Mr. Watson, or any reader of the *Journal*, tell me whether these are the right kind of bees with which to commence bee-keeping in India?—A. G. Radcliffe, *King's College, Cambridge.*

ECHOES FROM GERMANY.

By a Country Doctor.

Paper read at the Nineteenth Annual Meeting of German Bee-keepers, held at Halle in September, 1874, by Herr Hilbert.

(*Continued from page* 221.)

What I have hitherto said refers to my two years' experiments upon milk-feeding. I will now further mention a substitute still more valuable for attaining the end we have in view. This is hens' eggs. I expressly say hens' eggs, for, though I have used ducks' eggs, I quickly gave them up; for the bees take them only with the greatest reluctance, and often not at all. I am quite unable to decide whether the flavour of the ducks' eggs in itself is distasteful to the bees, as it is to some of us when these are used as human aliment, or whether a disagreeable taste is imparted to them by the fishy nourishment which my stream offers to the ducks. It is sufficient that hens' eggs deserve the decided preference for this purpose of feeding; and they are probably cheaper and more easily obtainable. If you ask why I prefer the eggs to the milk, I answer because, taking weight and price into consideration, the amount of nutriment is greater in the eggs than in the milk: thus a considerable quantity of nourishment may be given to the bees in a small compass. In other words, a thaler's-worth of milk does not represent the same amount of nutritive value as a thaler's-worth of eggs. No hard-and-fast rule can be laid down; for the relative value of milk and eggs will vary much according to locality and circumstances. With me, for instance, a mandel (15) of eggs costs at the most five silbergroschen, and the litre of milk one silbergroschen. Although I do not know the exact relative value in nourishment between eggs and milk, every one present will be at one with me in considering that five litre of milk do not equal in nutritive value a mandel of eggs; consequently that, from this point of view, the latter deserve the preference. The egg-food has another decided advantage; for, as I have already said, the bees take up every drop of the pleasant milk-food and seal over any not immediately consumed. This does not happen with the egg-food; for a stock takes no more of the quantity offered than is sufficient to satisfy their immediate need of nitrogenous aliment. When pollen can be obtained very easily, for instance, the bees can only in a few cases be prevailed upon to accept the egg-food; whereas the milk is always freely taken as long as it contains a proper proportion of sugar. I give the egg-food, as I do the milk, without any fear from neighbouring bees. It is all one whether honey or sugar is used for sweetening. If I choose honey to a schock (60) of eggs, which contains about 5 lbs. of egg-substance, I add 10 lbs. of honey: thus 1 lb. of egg-substance to 2 lbs. of honey. If I use the cheaper refined sugar, I boil 7 lbs. with 4 lbs. of water, and take the same weight of the resulting syrup as I use of the honey. The eggs to be used are put into a vessel, the so-called tread removed, and the white and yolk well whisked until they are intimately blended. Not until then is the sweetening matter added—which further must not be heated—and the whole thoroughly mixed.

For a stock quite strong I reckon, on the average, six eggs a-week, two eggs in three portions being given every other day. It is always necessary, the day after each feeding, to see whether the food has been taken up. If I ever find on the following day any ration not appropriated, I remove the feeding-vessel, and give the food that remains to a more needy stock, and give no more to the hive that refused it for at least a week. This exact management is quite necessary, for the egg-food undergoes decomposition within forty-eight hours, sulphuretted hydrogen, so abundantly present in the egg, being quickly developed, and further putrefactive changes being brought about by the warmth given off from the brood-nest. This drawback need not be apprehended with the milk-food; for even should the milk curdle, I can answer our great master Dr. Dzierzon's question relative to this point by stating that it is nevertheless taken by the bees without doing them any injury. Thus the feeding-vessel containing the latter may be left on the floor of the hive several days, until the bees have appropriated all the casein matter. As feeding-vessels I use those made of tin, which are only of such a depth that they can be easily pushed between the floor-board and the bottom bars of the frames.

It frequently happens that the food is not taken even by a stock requiring nitrogenous nourishment. This is usually the case when a weak population occupies a space in the hive too great for them to keep warm, the bees not being in a condition to cover the lower portion of the combs. Under these circumstances a narrowing of the brood-chamber, and especially keeping the bees as warm as possible, are to be recommended.

Although, for the reasons stated, I give the decided preference to the egg-food over the milk-food, I have used the former this year only as a variation with the milk, and shall in future pursue the same plan. Milk diet is to be particularly recommended at those times when the weather is uncertain and the bees are prevented taking their flight. In this case the milk supplies the need of water just as completely as the need of nitrogen, and the bees are pretty certainly restrained from untimely excursions. It is different with the egg-food; for this decidedly stimulates the bees to more frequent flight, in order to get water to supplement the small quantity of this contained in the egg. For this reason I give the egg-food only during very fine weather, and return always to the milk when this is unfavourable for flight. The mode of feeding now described I begin in the spring, but by no means too early, and not until the bees begin to take no notice of the meal which is offered them continuously after their first flight for purification. I give the meal in two apparatus, such as I have shown among the exhibits to-day, sometimes by itself and sometimes mixed with eggs and sugar. The mode of preparing the latter is shortly as follows:—The eggs are boiled hard, cut into cubes, and thoroughly dried. To a hundredweight of rye-meal I add a schock of eggs and 5 lbs. of powdered sugar; and these ingredients, mixed together, are ground in my mill, and the food thus produced given in my apparatus.

One can hardly advise giving the egg and milk-food before the 20th or 25th of April; and it is preferable in all cases to begin a little too late than too early. It is important that the speculative feeding, once begun, be regularly proceeded with until pollen can be freely obtained, in order that breeding may suffer no interruption, and that the nymphs and larvæ may not be thrown out of the hives by the bees; for then, instead of an advance, a retrogression is inevitable. Thus, in few words, let feeding be carried on regularly and adapted to the time, the greatest attention being paid to keeping up the temperature even in the strongest hives.

In this manner, gentlemen, I raise colossal populations, and such as become profitable even in a neighbourhood with bad pasturage. Judge my statement by the fact that I shall winter this year fifty-five populous stocks, and all nearly equally strong, not one of which requires strengthening or breaking up. This, gentlemen, I do in a spot where my neighbours keep no bees; for if any one ever makes the experiment, this lasts perhaps one year, and the bees, on account of the want of food in the spring, then die to a certainty.

Many of you, perhaps, will shrink from an experiment according to my plan; and so much the more as the Baron von Berlepsch says that he has fed some experimental stocks to death with milk. I affirm, however, that something altogether different was certainly to blame; and I would confidently undertake to make good the loss of an apiary fed exactly according to my direction, provided no gross blunders were made in reference to it.

Gentlemen, institute experiments on a small scale, similar to those I have made on a large scale in my apiary with good results. During last year and this I have given 300 litre of milk and 20 schocks of eggs, and in following years intend still further operating in the same direction.

AFRICA: NATIVE BEE-HIVES.

'In the forests they came upon artificial bee-hives, which are formed by removing the bark whole from a tree, which is then sewn up closed at both ends, and after a hole is perforated in each for the bees to pass in and out by they are hung upon trees. The bees, finding so suitable a place for the deposit of their honey and wax, take possession of it, and at the proper season their store is removed by the natives. In this way all the honey and wax exported from Loanda is collected. A piece of medicine (a charm) is attached to the tree, and proves a sufficient protection. Their idolatry is the result of fear only, and their dread of unknown and terrible consequences keeps the people honest under such circumstances.

'To the west of Leeba, Livingstone and his men found it useless to follow the fluttering flight of the bee-eater, or honey bird, as all the bees of the district were artificially provided with hives, and he would not permit any of the hives to be interfered with.'—*Life and Explorations of Dr. Livingstone* (Adams and Co., 1877), *page* 133.

THE GRESHAM COLLEGE HIVE.

In disproof of certain assertions made by Mr. Carr, in Vol. I. of the *British Bee Journal*, and again re-asserted by him at page 201 of the number for March last, the 'Renfrewshire Bee-keeper' led with evidence which placed beyond a doubt the facts, that Rusden was not the 'first to describe a frame put inside a hive for the bees to fasten their combs upon,' and that Gedde, who used a frame four years before Rusden published his book, was not the inventor of either octagon or storifying hives. Gedde obtained a patent, not for inventing octagon boxes, but for 'exercising and enjoying the new art and invention for the improvement of bees,' in April, 1675. His allegation, however, that the Royal Society of Gresham College approved of his hive is utterly groundless, as neither his name nor hive is alluded to in any Transaction from 1665 till 1800. But a description of an octagon hive is contained in a Transaction in No. 96, Vol. VIII., page 6076, July 21, 1673, and is with the figures as follows:—

'A description of a bee-house, useful for preventing the swarming of bees—used in Scotland with good success,—whereof one, sent by a worthy gentleman, Sir William Thomson, may be seen in Gresham College. Though we find several draughts of different bee-hives to the intention of preventing swarming,' &c. . . . . 'the publisher thought it not amiss to present the curious with the following form and its description, wherein he thinks the reader will meet with several improvements of those attempts that were made before.'

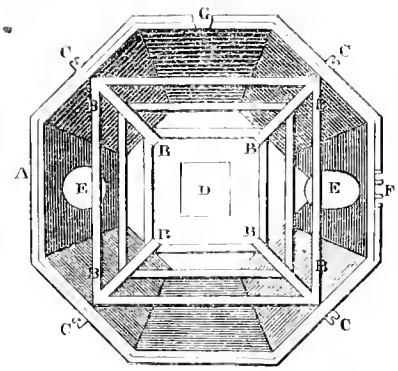


Fig. 1. Tab. 1.

A—the bee-house lying on one side, with the frame placed in it.

B B B B B B B B—the frame.

C C C C—the screw-pins that hold the frame-post.

D—the square hole at top open.

E—the windows.

F—the door for the bees to go in and out.

G—the place by which the knife enters to cut the honeycomb asunder upon occasion.

H H—the inward crease at the bottom.

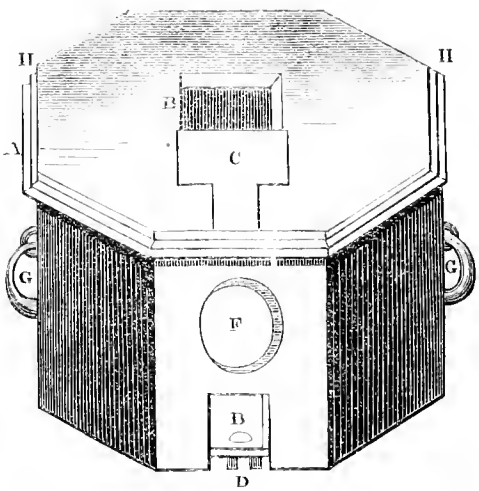


Fig. 2. Tab. 1.

A—the bee-house.

B—the square hole through which the bees work downwards.

C—the shutter that covers the hole upon occasions.

D—the door for the bees.

E—the sliding shutter that covers the door in winter.

F—the window.

G G—the handles for lifting all.

H H—the crease for fastening one bee-house over another.

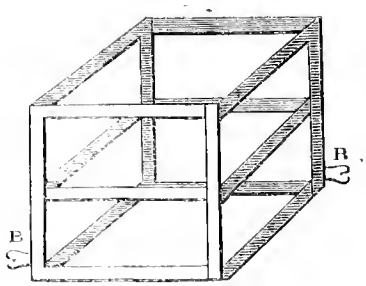


Fig. 3. Tab. 1.

A—the frame for the bees to fasten their work upon.

B B—the screw nails.

'The bee-house is made of wainscot, about 16 inches in height and 23 inches in breadth between opposite sides.

'It hath eight sides, each almost 9 inches in breadth. It is close covered at top with boards, having a square hole in the middle 5 inches long and about 4 inches broad, with a shutter that slides to and fro in a groove about half-an-inch longer than the hole. It hath two windows opposite to one another, and may have more, of any figure, with panes of glass and shutters. The door for the bees is divided into three or four holes, about half-an-inch wide, and as high, with a shutter that slides in a groove to cover them in winter. It hath two iron handles, with joints to be placed about the middle if there be no windows where they are, or above them if there be.

'At top it hath a crease all round it, about half-an-inch in depth on the one side, and 1½ inches high, and another on the inside, at the bottom, which serves to fix them when set one upon another. It hath also a hole, about 2 inches in height and as much in breadth upon one side at bottom, by which the knife is put in to cut the bees work that passes through the hole from one bee-house to another as they work downwards into the empty house, which hath a sliding shutter to cover it. Within the bee-house there is a square frame, made of four posts, joined at top and bottom and in the middle with four sticks for the bees to fasten their work upon, which, though they will, yet it may be securer to have two more added in every of these places crossing the frame, either from the middle of the opposite side sticks, or from angles where posts are placed.

'This manner of bee-house is useful for preventing the swarming of bees; for when the bee-house wants room for the young bees, 'tis known they fly away to find a home for themselves, which is prevented by placing an empty, made thus, under the full one, having the door at top open that they may work downwards into it, and when both are full the bees will all be in the lowest house; and then to get the honey and wax without destroying or troubling the bees, with a thin, long knife, broad at the end, and sharp at both sides, the bees' work is to be cut as low as can be, and the uppermost bee-house to be lifted off by the handles; and being reversed the screws are to be taken out, and then the frame, with all the bees' work upon it, will easily slip out. And so the empty bee-house may be forthwith set under the other, if need be, and the uppermost having a square hole, covered with the shutter, some overcover may be set over it to keep the bees from the injuries of the weather.

'And if this separation be made in spring or summer, the bees will like their new house the better that it hath been used before. What else is to be done as to the right ordering and management of bees, is to be learned from the authors that write of it, and from the persons best experienced in it.'

I am not certain whether Gedde invented anything not previously known. But twenty years before his patent of 1675 was taken out, figures of octagon and circular storifyers, with the description thereof, were published, as also the way to put a frame into a storifyer.

These figures and descriptions are still extant.—QUESTIONER.

BEE-KEEPING IN THE HIMALAYAS.

About one hundred miles above the city of Lahore, the capital of the Punjab, the Ravee receives the waters of a small river called the Suil, which, after a course of forty or fifty miles, brings down to it the melted snows of the glaciers on the south side of the range of mountains between the Ravee and Chenat rivers.

The valley through which the Suil and its branches run, is generally called the Chau-rah, or four roads, not because there is anything in its whole length or breadth which could by any stretch of courtesy be called a road ; but I fancy because there must be four passes through the hills which bound it, although I have myself crossed only three, and do not at present remember a fourth. Those which I have crossed are of respectable elevation, being respectively 10,800, 14,500, and 17,700 feet in height, and they are of course, except the first, covered with perpetual snow.

The sides of the Suil valley are generally very steep ; but wherever the slope is sufficiently moderate to admit of the land being laid out in level, or nearly level terraces, by means of retaining walls of dry stone, there cultivation exists, and villages have been established. Besides wheat and barley (oats are unknown), the chief crops are Indian corn, buckwheat, tobacco, pumpkins, a sort of canary-seed, and amaranthus (Prince's Feather), the seeds of both being used for bread, and various sorts of millet, and some descriptions of pulse. Some of the villages, however, seem to look upon their cultivation as a secondary consideration, and to make the keeping of bees their chief business ; and although their method would perhaps hardly answer either with Englishmen or English bees, it is at any rate curious, and may interest some of your readers, and it is certainly very successful and exceedingly profitable.

The houses are built with a framework of wood, which it would not be easy to describe without a sketch, but which leaves everywhere in the walls, both in their whole length and height, open spaces of about two feet high, and from ten to twelve feet long, which are subsequently filled up with stones and clay, after which the whole is plastered inside and out with a preparation of gypsum, which is found in abundance in the hills. The roofs are flat of beaten clay, and the eaves project about three feet beyond the walls. As the whole weight of the roof rests entirely on the wooden framework, the stones and clay with which any one of the spaces I have mentioned is filled, can at any time be removed and replaced without at all interfering with the stability.

In each of these spaces, particularly in the walls facing the south, are placed one or more round earthenware water-pots, the height of which ought to be equal exactly to the thickness of the wall ; these are built into the wall lying on their sides, with the round bottom outside, and its extreme convexity flush with the outside of the wall, whilst the mouth of the vessel, which is six or eight inches in diameter, is flush with the wall in the inside of a room. In some houses there are as many as forty of these water-pots (called Ghurrahs in India) thus imbedded.

All that is now wanted is to make a small hole on the outside convex bottom of each water-pot for the bees to enter ; stick on a small patch of clay below it for them to alight on ; put in a swarm and close the mouth of the pot with an earthenware lid made to fit.

When honey is to be removed, all that is required is for the operator to enter the house, close the door, tap on the lid of the ghurrah, to drive out the bees, or if that is not sufficient, open the lid a little and blow in two or three puffs of smoke from a lighted rag, then open the lid fully and remove as much of the honey as may be deemed expedient, after which the mouth of the pot is reclosed, and the bees soon return and go to work again ; enough of the honey always seems to be left to support the stock through the winter, and I could not ascertain that artificial feeding is ever resorted to. As the houses are occupied by the family, as well as the cattle of the owners, and in winter pretty constant fires are kept up, the bees no doubt benefit by the heat.

Besides these hives which are never killed off, each house generally has a large number of others, the result of swarming, which are managed in a different way. For these a hive is prepared thus. A piece of the trunk of a pine or cedar tree of about eighteen inches in diameter, is cut to a length of two and a half feet; this is split down the middle, and each half hollowed out in the centre, so that when rejoined there is a considerable space inside. A hole is made in one of the halves for the bees to enter, and a swarm having been secured it is lodged in the hollow log, the two parts of which, having been securely tied together, is then hung up close under the projecting eaves of the house and well out of the reach of bears, which are numerous in the district, and very partial to honey.

To get the honey from these swarms, I believe it is usual to destroy the bees ; but I have heard, although I do not know exactly how it is done, that instead of destroying all the bees, the queen only is sometimes killed, and the workers added to one of the stocks in the house wall which may have become weak.

The bees in the Chau-rah are smaller than English ones, and seem to be of a different kind, although the comb and honey appear to be exactly the same. I am informed that they rarely if ever attack any of the villagers or their cattle; and if this is true it would seem to show a good deal of intelligence on their part, as I can answer from frequent personal experience that it is very unsafe for a stranger to approach, still less pass through one of the bee villages.—J. C. (*From the Agricultural Gazette, April 2.*)

BEES IN FORFARSHIRE.

In this quarter bees have come through the winter pretty well. There have been fewer losses, as a rule, than usual, owing no doubt to bee-keepers acquiring more knowledge of 'the how and when and what to do' with their stocks. Since I wrote you last month the weather has been unfavourable for bees, and consequently they have not increased in numbers in the ratio that was calculated on six weeks ago; whereas, on the other hand, their stores have decreased amazingly—in fact, the consumption of food has been much greater the past winter and spring than in ordinary years, which shows the necessity and good policy of providing stocks with plenty of stores at the end of the season, and supplying them with the all-necessary stimulus in spring. Some stocks have consumed much more than others, notably the pure Ligurians, but they have at least twice as much brood and young bees as the blacks have at present.

Vegetation is far back yet. We have had a biting cold east wind for some time. Few spring plants are in flower. There is an Alpine plant (*Arabis albida*) I would recommend all bee-keepers to cultivate. It is a small evergreen trailing perennial; will grow anywhere suitable for light soils and rock-work, flowers from February to September, and contains much honey and a little pollen.

On fine days from one of my best stocks I catch a drone or two occasionally taking an airing; they have not been in the hive all winter. The stock is healthy and has brood in all stages in it. How do you account for those drones, according to the prevailing theory? This cannot be an exception to the rule, for two of my friends have drones in some of their stocks also.

Have you tried Hilbert's 'milk diet' feeding? Don't you think that the Swiss or Aylesbury condensed milk would be better than Hilbert's preparation? It would, at any rate, be handier; for all that one would have to do with it would be simply to puncture a hole or two in the end of the tins and place them on the feeding stage. Strange that the discovery of giving milk to bees has not been made long ago, for have not poets and philosophers for centuries talked and sung of 'Sucking bees,' 'Where the bee sucks,' &c.? Is not milk the natural diet of all sucking animals? Blue glass hives would be another acquisition.

It is also very strange that this blue glass 'dodge' has not been thought of before. In the far remote ages of antiquity the face of this globe was covered with a dense, rank, luxuriant vegetation of flowerless plants, for there were no bees to 'suck' at that time. The then atmospheric state favoured an immense growth and size in every living thing, for the ray of light that predominated was the blue. This fact being known, how is it that advantage has not been taken of it long ago to increase the size of animals and plants?

I should recommend you, Mr. Editor, to make a few 'blue glass' hives of the proper 'blue-violet tint.' Such hives would completely, finally, and for ever decide the 'battle of the hives,' for the superiority of these would be clear as noonday, even to those who do not wish to see. Then purchase a few milk-cows, stock the hives with bees, feed them on their natural diet, 'milk and sugar,' and see how you would increase the size, longevity, stamen, strength, &c. of our favourites. They would then be able to go long distances for honey, perhaps a score of miles or so, bring home large quantities instead of tiny drops, and their stings—ah!! I did not think of them—their stings are quite large enough already for many of us, and it might be judicious not to increase the size of them. In short, now I think of it, perhaps it would be better not to try the experiment at all, but let the bees 'be' in their own natural way, and according to their own natural instincts, and let all those who do not see themselves as others see them proceed in their own blind and stupid ways.—J. S., *Arbroath.*

BEES IN PERTHSHIRE.

I have heard of the *British Bee Journal*, but have not seen it, and am anxious to get it for one year from 1st April, for which I herewith enclose Post-office Order for six shillings. I may mention that I commenced bee-keeping three years ago, and was guided solely by Mr. Pettigrew's works; but I have so far been very unfortunate. I have in that time lost all the bees I bought, which cost me upwards of 20*l.*, and did not get more than 30*s.* off them. I lost six swarms in March, last year, that I paid 36*s.* each for to Mr. Pettigrew the previous September. They all died out, but had plenty of honey, or rather sugar, in them. I have to buy this year again, and I hope, with the directions given in your *Journal*, I shall be more successful.

I am a poor working man, and have more than once paid out the last sovereign I had for bees; so you see I don't give in till I am beat. This is a very late quarter; there is not much flower here, but plenty of heather.—John Wood.

PASTURAGE FOR BEES.—No. III.

(*Continued from page* 223.)

Wallflowers (*Cheiranthus cheiri*). This is a very valuable hardy perennial plant for bees, as it comes into bloom early in April and continues in flower several weeks. No garden should be without quantities of these hardy perennials, as they look nice and green all winter, and are covered with beautiful blooms in spring, scenting the air all round, especially after a shower of rain. The bees collect quantities of pollen and honey from this plant. The seed should be sown in a rich soil in March or April, and transplanted in autumn where they are intended to bloom. It grows about eighteen inches high, and there are about 18,000 seeds in one ounce.

Canterbury Bell (*Campanula media*). This hardy, biennial, showy plant blooms from June to August, and is much visited by the bees; it yields a quantity of pollen. It should be sown in March or April in a rich soil, and transplanted in autumn where they are intended to flower the next year. It grows about two feet high. The plant after flowering seeds and then dies.

Yellow and White Bokhara Clover (*Melilotus Leucantha* and *M. albus altisonus*). The seeds of this biennial plant should be sown in a rich soil in March, and that year it will grow five to seven feet high, which dies down to the ground in winter, and next year it grows from ten to twelve feet high, forming a very graceful and elegant plant covered with its spikes of white flowers, which come into bloom in July and last several weeks. Bees collect honey from this plant of a beautiful light colour and fine flavour. The tap roots of this plant go a great depth into the earth, so it is well adapted for barren hills, steep hill-sides, and broken ground generally, as they can well withstand a drought. The plant after flowering seeds and dies. There are about 1800 seeds in one ounce.

Esparcette of Spain, or Sainfoin of France (*Hedisarum onobrychis*). This leguminous plant yields a great quantity of very beautiful honey, and is very good for hay, as its French name indicates—*Sainfoin*, healthy hay. It likes a chalk or sandy calcareous soil, and flourishes on the poorest land. The seed should be sown in spring, and it blooms about June the year following. Sow about four bushels of seed per acre; it costs about 9*s*. per bushel. The flowers are a pretty rose-colour, and the plant will last ten to fifteen years without resowing, its roots being large, hard, and woody. The plant yields an enormous quantity of honey and forage, which is particularly recommended for feeding milch cows, sheep, &c.

Lucerne (*Medicago sativa*, and its varieties, *Med. falcata* and *Med. lupulina*, &c.) This plant blooms earlier than clover, and yields very good honey and three to four crops of very excellent hay yearly, and lasts from six to eight years in France without resowing. Its flowers are from yellow to a deep violet colour. Sow about sixteen pounds of seed per acre; it costs about 1*s*. per pound. There are about 11,500 seeds in one ounce.

Lentil (*Ervum lens* and *Ervum ervillia*). These plants yield good honey and excellent hay. The first-named is eaten by the French people, and it is with its seed the French housekeeper makes the *puree de lentilles*.

Rape (*Brassica napus*). This plant yields a great quantity of beautiful golden honey of good flavour. If sown in autumn, in a rich and well-tilled soil, it blooms in May. The Baron Von Berlepsch says: 'There is no plant in all Germany yields more honey than rape. On the 10th of May, 1846, there was near to my apiary a sixty-five acre field of rape in blossom. The weather was excellent, and my strongest colony, which I placed on a platform scales, gained that day over twenty-one pounds in weight.' If the seed is sown in spring, about seven pounds per acre, costing about 3*s*. It blooms in August, and yields an immense quantity of honey when nearly everything else has ceased to secrete honey. As a farm crop it is as good, if not better, than wheat. It is harvested in September, and thrashed out in ten days, and produces from ten to eighteen bushels per acre. Rape benefits the soil, and produces from five to eight bushels of wheat more per acre on the ground which had rape the previous year. It allows no weed to grow after it is fairly started, and does not suffer from drought like other grain.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

GLUCOSE.

'G. G.,' North Wilts, asks for information about glucose. Glucose is a variety of sugar which is found in many dried fruits; *e. g.* the granules in old dried raisins consist of glucose, which is also called grape-sugar, because it exists in sweet grapes. The solidification of genuine honey is due to the crystallization of glucose, into which the principal part of the uncrystallizable sugar, of which new honey largely consists, becomes converted. The opacity of solid genuine honey is due to the multitude of minute crystals of glucose. A change similar to that which honey undergoes by keeping takes place in barley-sugar, which thus becomes opaque. Acid drops and other sweets are similarly affected by keeping. The deliquescence of barley-sugar is, no doubt, due to the presence of uncrystallizable sugar it contains, formed from the cane-sugar by heating (even without an acid); too much acid would render the barley-sugar opaque from the formation of glucose. When cane-sugar is boiled with water and vinegar (acetic acid), or even when boiled a very long time without acid, the solution formed is a syrup containing uncrystallizable sugar and glucose. When this syrup is kept the uncrystallizable sugar gradually decreases, because it is converted into glucose, which of course increases, solidification ultimately taking place owing to this spontaneous change, as in honey. There are many ways of preparing glucose. It is manufactured commercially by boiling starch with water and sulphuric acid (the syrup mentioned as containing sulphuric acid, see page 220, second column, is prepared, I presume, in this way). I doubt if honey is adulterated with refuse or imperfectly prepared glucose; the detection of such a clumsy sophistication would be too easy to be practised with impunity. Pure glucose is much more likely to be employed. —J. H. Eldridge.

LIMITING THE NUMBER OF DRONES.

Have any experiments been made with a view to reduce the number of drones usually produced in a hive? In the case of the domesticated animals, viz., the horse, the ox, the sheep, and the pig, less than one tenth of the male progeny are found sufficient; and it is very probable that less than one twentieth of the number of drones would likewise suffice. The drones subsist upon honey collected by the workers, and it is not improbable that nearly half-a-pound weight of that article is consumed daily by the superfluous drones, at least 30 lbs. during the three months of their existence. If it were possible for the bee-keeper to obtain this honey in addition to the quantity now obtained, the average produce of the hive would be more than doubled. Supposing the theory of Dzierzon and Wagner to be correct, that the sex of the bee is

mainly governed by the size of the cell, an attempt to reduce the number of drones might easily be made by the possessor of a bar-frame hive. It would only be necessary to take out the combs, remove the drone-cells, fill up the vacant places by worker-cells, and then replace the combs. A hive so treated should then produce few or no drones, and it would soon be known whether an extra quantity of honey would be the result. Those bee-keepers who work with the Stewarton hive might likewise assist in elucidating this point, as drone-cells are usually formed at the bottom of the combs. The lower body-box should be removed, the drone-cells at the bottom excised, and the box then placed above the other one.

I think the experiment is well worth trying, and if any one should succeed in devising a simple mode of effecting the object, he would be as much entitled to the thanks of the bee-keeping community as the inventor of the system of supering. I am aware that drone-traps are used, but their application would be very much on the principle of 'locking the stable door after the steed is stolen,' as the object should be to substitute worker bees for the superfluous drones.—W. Hunt, *Caterham, Surrey.*

THE BEES—A POEM.

By A. Murphy, Esq.

Through the kindness of the 'Renfrewshire Bee-keeper,' a volume with the above title, and of considerable merit as the production of an accomplished scholar, has just been forwarded to me for perusal.

It is a work scarcely known to the bee world, though printed as far back as the year 1799. Like the poem of Dr. Evans, it is divided into four cantos or parts; but that Dr. Evans was unacquainted with it is evident from his address to Albion, where, in speaking of the neglect of bees by British Muses, he says:—

'No nectar'd vale, no bee-crown'd hill can boast
One wreath of praise from all thy laureate host.'

The poem of Murphy, which is based on the teachings of Maraldi, is just a translation of the Latin poem '*Apes*,' forming the fourteenth book of the *Prædium Rusticum*, in Sixteen Books (Jacobi Vanerii è Societate Jesu, 1739). Consequently any merit that it possesses lies in its elegance and faithfulness as an English rendering of Vanière's Latin.

How this has been done may be gathered from the following specimen:—

'Et mira quantùm dulcedine versûs
Virgilius, rerum tantùm novitate placebo,
Veridicæ magis Historiæ quàm Carminis Auctor.'
Vanière.

'And through the Roman charms with graceful ease
Plain truth I boast; by that aspire to please
The Historian, not the Poet, of the Bees.'
Murphy.

In which the sense is well, but perhaps too freely, expressed. Dr. Evans speaks of the bees being able to boast of a 'poetical panegyrist in the elegant Vanière;' and the 'Renfrewshire Bee-keeper' suggests that the former may have got the hint of a poem in four books from the latter, which is not unlikely.

As the work of Dr. Evans continues to be an object of interest, it may be interesting to see how Evans and Murphy respectively execute their tasks on a given subject. Take Maraldi's 'Slug':—

'If e'er a snail, as history relates,
Elude the guard and pass the city gates,
The bees, with horror, see his hideous glare,
And scent his mucus in the tainted air.
They rush to war: war sounds in every cell,
And the foe shrinks, contracted, in his shell;
There, close entrenched, the pointed dart defies,
Till the bees' genius a new scheme supplies.
With viscous heaps the monster they surround,
And safe enclose him in their waxen ground.'
Murphy.

'For soon, in fearless ire, their wonder lost,
Spring fiercely from the comb th' indignant host;
Lay the pierced monster breathless on the ground,
And clap in joy their victor pinions round.
While all in vain concurrent numbers strive
To heave the slime-girt giant from the hive:
Sure not alone by force instructive swayed,
But blest with Reason's soul-directing aid
Alike in man or bee, they haste to pour
Thick hardening as it falls the flaky shower.
Embalmed in shroud of glue the mummy lies;
No worm invades, no foul miasmas rise.'
Evans.

The four cantos of Murphy average 225 lines each.
Questioner.

TOMTITS, FLY-CATCHERS, AND FRAME-HIVES.

Your correspondent in your *Journal* for March says the tomtits have been unusually troublesome this season, and that the gun is the only effectual way of stopping their depredations. Having numbers of those rascals in this locality every season, I find the easiest and best way to catch them is with a cage-trap, such as is used to catch goldfinches.

I put a few dead bees (which I can generally find at the front of my hives) on a piece of paper at the bottom of the trap; no other bait is required. I have caught fifteen since the middle of January in front of one of my hives (I have only caught two in March), and nearly as many last season. I always set it in the same place and on the ground. It is always the large black-headed tit that is caught. I have never seen the small blue tit touch the bees, although there are numbers of them here.

The other destructive bird amongst the bees is the fly-catcher, or wall bird, a bird of passage. I have seen them in June and July, when they have young ones, flying through the mass of bees in front of the hives, and catch a bee every time, which they take to feed their young with. They get all their food while on the wing. The best way is to destroy their nests wherever they are found.

My hives were till last year all square, close boxes, one foot square and one foot deep outside, with window in back and hole on top, on which I used to put glasses or small wooden supers. I have one square box, four or five years old, which I never had a swarm from; neither has it worked in the supers, and yet it still lives on, though not so

strong in bees as the other hives. The hive is full of comb, but I think they have but little honey. Will you please tell me what I had better do with it? I shall use none but frame-hives for the future. I make my own from directions in your *Journal*.

I have used for a quilt this winter, on my two frame-hives, a piece of Brussels carpet and two pieces of cocoanut matting, which I find gives plenty of ventilation and keeps the hives nice and dry. A board is laid on the top to keep the quilt on.—H. Cook, *Walthamstow, Essex*.

WEIGHT OF HIVES.

Allow me to thank Mr. Bristol for so kindly and fully responding to my suggestion. Such clear and concise statements of facts as his command one's confidence and are of the greatest value to bee-keepers. I have no doubt your commendatory note expresses the feelings of almost every reader. Three of my hives (straw skeps) weighed, gross, on 18th October, 1876, old stock, 27 lbs.; its first swarm, 24 lbs.; a driven stock, fed on Pettigrew's plan, in empty skep, 22 lbs.—it had 4 lbs. more syrup given to it after weighing. On the 17th February, 1877, these hives weighed 21 lbs., 18 lbs., and 20½ lbs. The remainder of my hives (both frames and straw) were too heavy for my spring balance, whose limit is 28 lbs.—J. H. Eldridge.

FURZE AS A HONEY PLANT.

Ulex Europæus.—I have this day, 13th April, 1877, passed (walked) over some 14 or 15 miles of country, principally in Sussex, bordering Surrey, and seen a good deal of this plant in blossom, some quite out, and along the whole distance I did not see a single bee on any of its flowers, though I saw them on other flowers—the palm or willow, for instance.—Fred. H. Lemare.

FURZE AND BROOM.

In reply to your correspondent Mr. J. H. Eldridge's query, last month, I beg to say both the above shrubs are highly prized by the honey-bee. On our whinstone strata the whin abounds, and on a rocky hill about a mile distant, well covered with them, my bees work diligently, returning tinted in the brightest of golden liveries.—A Renfrewshire Bee-Keeper.

HINTS TO SECRETARIES.

It is time to interview gentlemen connected with local horticultural societies for the purpose of getting them to increase the number and value of prizes usually offered for honey, hives, &c. If the advantages of the modern system of bee-keeping are properly explained, success will generally follow. But where such societies are too poor to contemplate an increased expenditure, they will seldom refuse to make it a provision that all honey exhibited shall be taken without destroying the bees.—C. T.

Foreign Intelligence.

GERMANY.

The usual Maundy Thursday Honey Market at Breslau proved a great success this year, some 11,000 litre of honey, 500 lbs. of honey-comb, and a large supply of wax being on sale, most of which changed hands at good prices. In its report on this subject, the *Landwirth* takes occasion to deplore the comparative scarcity of bee-hives in Silesia at the present time. Pastor Schoenfeld, a well-known authority on bee-lore, has calculated that each square (German) mile of land will support 500 or 600 hives, at which rate the entire province would accommodate nearly 500,000. The annual return obtainable from that number, taking the value of a single hive at the very low estimate of 6 marks, would be nearly 3,000,000 marks. Unfortunately, however, the number of existing hives, as ascertained by the latest census of 1873, is but 138,792; so that, if the pastor's estimate be correct, sufficient flowers to feed some 360,000 swarms of bees are at present doomed to 'waste their sweetness on the desert air,' and income to a corresponding amount is lost to our Silesian friends.—*The Farmer*.

ITALY.

At a recent meeting the Central Bee Association has finally decided to re-establish its own apiary, the difficulties having at last been all removed. It has also been decided to hold a General Bee Exhibition at Milan during the present year, particulars of which will be published in May next (this month).

After a mild winter the cold has set in with severity in the latter part of February and the two first weeks of March, thus stopping for the time being all operations. A change for the better has lately taken place, and all will now, it is hoped, follow the ordinary course.

AMERICAN 'HONEY.'

A correspondent says he recently purchased some glasses of so-called American 'honey.' It is very clear, like the nectar from clover or black-thorn, and there is a tempting-looking piece of comb in the centre of each glass. But he believes that the 'run honey' is nothing but flavoured sugar syrup, and that it ought to rank with the famous wooden nutmegs.

Echoes from the Hives.

The Standard Hive.—*Market Drayton.*—'The Standard Hive, with super, is to hand, after a long delay in transit. The Standard is, I think, worthy of the name: and with such a hive, and after the Bee Association not taking any steps in the matter, I think you are justified in advancing it to the public as the "Standard" Hive for Britain; and it is to be hoped that no private interest may endeavour to throw obstacles in the way of its being adopted. Will you please send me three more hives exactly similar, green painted, without any delay; for my stocks are in a forward condition, and I shall be glad to place my earliest swarms in them, and hope gradually to discard other bar-frames—of which I have fifty—in favour of your Standard. The Alexandra Super you send is very good, but too expensive, I think, for general use.—B. H.

The Little Wonder Extractor.—*Nottingham.*—'The Extractor has arrived safely, and is most excellent.'—L. R.

Loughborough.—'I am quite pleased with the hives, &c.; they are so cheap, and everything about them is so much truer than I can get them made here.'—F. B.

Pea-flour.—*Sheffield.*—'The other "Order" is my subscription for the new volume of the *Journal;* and in sending it I should feel very remiss if I omitted thanking you for the universal courtesy, as well as readiness and ability, with which you have responded to the queries that I have had, from time to time, to trouble you with. I must also congratulate you upon your removal to Southall, which I trust will give you every satisfaction. My stocks are all vigorous and fairly strong, a remark which will, I fancy, apply to many apiaries this year. This month has opened out here with a week of fine weather, and every gooseberry-bush has had its choir of eager visitants, and the palm has yielded its abundant stores of pollen. Nothing, however, has had so large a share of attention as the pea-flour administered in an inverted hive half full of shavings, as you suggested. For long I could not get the bees to take it; and perhaps the reason may be the same that is misleading some other bee-keepers. I got pea-meal, such as is used for feeding birds, which no device would make go down; but when I procured Symington's prepared pea-flour for soup I had no longer to invite—all passing bees took "French leave."'—J. J. H.

Middleton-in-Teesdale, Durham, April 14th, 1877.—'I have eleven hives, and they are all healthy and strong; but our locality is a mountainous one, subject to heavy winds and pelting rains. My hives are straw and wood combined; there are no bar-frame hives here, and I never saw one till I saw the one you sent me, and I like it very well. There are a few wooden hives here, but they offer no advantage over the flat-topped straw skep; in fact, I know that they mould to such a degree that the bees are reduced to a minimum, and swarming is rendered late or impossible; and it is only by the purchase of new swarms that apiaries here are kept up. Well, I might say that I have no dread of this kind of thing with the bar-frame hive and quilt; in fact, the bar-frame hive, to my mind, offers all the facilities that a hive can offer. This may seem to some an extravagant expression; but it is not without thought. My bees are early, and I am in the habit of getting swarms in May. Will you give me your advice on this point? I only want two or three swarms at most. My intention is to take away super-honey. Well, now, supposing the bees to be early, honey is wanted of swarms, but the honey-gathering only commenced in July, as it does here, from the white clover, and in August from the heather—how would you proceed, or what steps would you take to keep your bees from swarming, and take a fair harvest of honey, with the season taken into consideration? Your advice on this point will be deemed a favour in your next issue.'—Thomas Smith.

[Note.—If the bees swarm so early as May, and the honey-harvest does not come until July, the skeps should be nadired or eked to give more room and reduce the probability of swarming. Another plan which will delay their exodus is the clipping of the queen's wing; but in that case she must be sought on the ground, and returned to the hive after each attempt at swarming. Another plan will be to let or make the bees swarm in May, and immediately give them new queens, when they will be in fit condition for the July harvest.—Ed.]

Bolton.—'My Cheshire hives are unfortunately made with space between frames and crown-board. I wish they were the other way.'—A. K.

Keith, N.B.—'Our bees have not yet gathered a grain of pollen—the weather still stormy. Your challenge is about on a par with Pettigrew's. What is to hinder Pettigrew from feeding, &c., &c.? My mode of test is, let every one for themselves try bar-frame hives and Ligurian bees. I am putting both to the test, and that honestly and without any bombast. I am very sorry for one remark you make, viz. that purer honey can be obtained from bar-frame hives than from straw ones. Last year I took the honey from an old straw skep without any intention of exhibiting it. Well, it took the first prize over the bar-framers. Afterwards it went to New York. Our hives (bar-frame) known as the 'National Standard' measure 18 in. from back to front, 11 in. deep. The frames have guides on bottom, or rather side-rails. There is a fine "row" here with a gentleman who bought a hive of Ligurians. The hive, or frames, had no guides, and when removal was attempted, clap went the frames and down went the combs!—the whole thing went to ruin. Proper hives, where the frames are in their places, and without crown or floor-board, could be thrown over the house "so far as disarrangement is concerned;" at the same time the frames are quite as easily taken out as any hive ever invented or ever will be.'—A. C.

[Had Mr. Pettigrew thought fit to accept our challenge, every precaution would have been adopted to prevent trickery on both sides. We did not contend that we could obtain purer honey from bar-frame hives than can be obtained from skeps when supered, but hive for hive with the extractor at hand, and the adapting zinc to prevent the queens entering side combs, and to strain the pollen from the legs of the entering bees, we feel confident that the skep would be left far behind.—Ed.]

Hereford, April 9th, 1877.—'Have just found a hive filling a large box super and working like as 'twere the middle of June, and drones coming out of it in abundance.'

Early Drones.—*Hereford.*—'28th of March was the first day I noticed the drones, though they may have been before. I have also in another straw skep one of Pagden's hives, with drones as if ready for swarming. I assure you that yesterday they were going in and out like June. I never in my life have seen legs so covered with pollen at any time of the year; and actually at seven in the evening four bees were outside "fanning" the hive and making as much noise as in the hottest night in July. It must be extraordinary, I think. We seem to have lots of food. Peach and apricot blossoms, pears, raspberries, currants, &c., all out, and coming apples directly; unless the weather is fearful (but I believe we are going to have it beautiful) no fear of them going on. I am telling no story: I have only five hives; but in June with fourteen the year before last I don't think there seemed more bees about, or stronger.'—T. J.

[Note.—A piece of comb cut from the hive containing the drones was sent us, and as it contained true worker-brood, there can be no doubt but that the drones were normally produced.—Ed.]

Sydney Road Apiary, Guildford.—'On Friday last I opened four of my bar-framed hives to examine them; found them all quite healthy and full of bees—so much so that when I took out each frame they managed to hide their queen from view. They all contained a good deal of brood. I have an 18-inch straw skep so full of bees—"choke full," lying and clustering outside sometimes—that I fear it means swarming soon. No drones at present. Fifteen stocks in all, and all doing well. Wintered under the blanket or "marine store."'—F. H. L.

Queries and Replies.

Query No. 207.—Bees and Noises.—Would you please to say in your next month's *Bee Journal,* if I were to buy a young swarm of bees, do you think they would stop where hammering is continually going on? as there are about nine file-cutters in the next yard, about 8 yards off, though it is not so hard as to cause a vibration of the earth. They are, however, constantly knocking. Please say whether you think bees are deaf to sounds or not?—E. W.

Reply to Query No. 207.—Noises not sufficiently loud to cause sensible vibration of the hives have no

effect on bees, and even though vibration does sometimes occur, bees do not desert their homes, as a matter of course. In church towers, where the jangling of bells causes a vibration of the building easily perceptible, bees will continue. We do not think bees are deaf to their own music; but for other *noises* they appear to have no 'ear.'—Ed.

Query No. 208.—I find that a considerable amount of the sugar syrup given last autumn has crystallised in the combs. Will the bees remove it? or must I help them? and in what way? As it is, a considerable extent of comb is useless for breeding or storing honey. I should be much obliged for an answer to my queries in the May number of *Bee Journal*.—A. C., *Market Drayton, April 12th*, 1877.

Reply to Query No. 208.—The easiest remedy, and the best help to the bees, will be afforded by sprinkling the combs containing the crystallised sugar with warm water, and returning them to the hive. A fine-rosed water-pot would be a great help in this. If more convenient, sprinkle one or two at a time, and leave them out where the bees can find them—in some quiet, warm corner, not near any hives.—Ed.

Query No. 209.—In an Abbott's eight-frame hive the frame next the dummy is filled with drone-comb (empty). Would you advise me to remove it? About half of it had brood in last year.

Reply to Query No. 209.—It would be well to remove the drone-comb, and place the empty frame in the centre of the hive as soon as the weather will warrant the operation. The bees will then most probably build worker-comb.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

The Pink Wrapper.—The Fifth Volume having commenced we respectfully hope that those receiving their *Journals* in pink wrappers will kindly accept it as a hint that their subscriptions are due; and we earnestly beg, as a personal favour, that they will save us the labour of account-keeping by sending them forthwith.—Ed. *B. B. J.*

Reader.—Mr. A. Neighbour has kindly forwarded to us a catalogue of the bee-books adverted to in his communication in the February number. From both an apicultural and a bibliographical point of view, it is a most important collection. It contains about 180 books, or editions of books, many of them of the greatest rarity and value. We shall take an early opportunity of giving the catalogue 'a local habitation' in the *Journal*, and may possibly supplement the same from such sources as may be at our disposal. It is decidedly of importance that we should be made acquainted with the writings of those who may be termed the pioneers of apiculture.

Queensborough Park.—There is no cause for alarm; the bees have simply pared the combs down to the proper length for breeding in. Before they were transferred, portions of them had evidently been used for the storage of honey, in which case the bees almost always elongate them before sealing it over.

Artificial Pollen.—It will be quite useless to offer the bees any substitute for natural pollen after the latter has 'come in.' During March they will take it ravenously; but when the willows show their 'goslings' (yellow catkins), followed by plum and pear-blossoms, and the spring flowers coincident with them, the 'big sunflower' in the skep is always deserted.

Anonymous.—It is unusual for bees to crumble away their combs as described, and we can only suppose that they do it to get rid of the larvæ, and the silken trail of the wax-moth, or that they are excavating and cutting away the cells containing old and hard pollen. We could not reply by letter, as no address was sent.

Litigant.—It will be useless disputing the question; the learned Judge at the Bloomsbury County Court decided, on the 22nd March last, that, '*anyone keeping bees should learn how to take care of them.*'

S. E.—The super should be removed and cleansed from any *débris* that may have accumulated in it, but as it will now probably contain brood it should be replaced, and twenty-one days after swarming it may, if full, be removed and another set in its place. The round-topped skep should have a hole cut in it of about 2 inches in diameter (a knife with longish thin blade will be required), and having blown a little smoke into the hive—it may be done without disturbing the bees, or hindrance from them,—then be prepared with a thick ring of soft putty, to lay on top of the skep round the hole, take a board of the size of the super to be used, having a hole in centre corresponding with the hole in the skep, and press it on to the ring of putty, so that it shall lie flat, thus forming what is called an adapting-board, on which supers may be conveniently placed. Instead of putty, plaster of Paris, mortar, adobe, or cement may be used; but in either case it will be advisable to partly drive a few tacks into the under side of the board before pressing it on, so that they may key themselves into the putty or other material and hold the board securely.

Greatham, West Hartlepool.—We cannot advise as to the hive that will suit you as we cannot gauge your pocket or your taste. Please to make your selection from Catalogue. A natural swarm of hive-bees, if as strong in numbers as that from a nest of wild ones, would do equally well with it, but a small swarm from a small skep put into a 'Pettigrew Barn' would, perhaps, take two years to fill it.

S. S., *Send Holme, Woking.—Uniting Queen after Swarming.*—Drive the swarm from the black stock, and place it on its stand, removing the said black stock a few yards to the right or left, then cage your queen in a tube of wire or perforated zinc about 4 inches long, 1 inch wide, $\frac{3}{8}$ inch through, having a plug of wood or cork in each end; thrust it between the brood-combs in the centre of the hive, cover up, reduce the entrance so that only one bee can pass, and leave it for 48 hours, after which the queen may be released, and, as a rule, will be safely received by the young bees in the hive.

J. V. of the Post Office, Wangford, Suffolk, would be glad to be furnished with the address of any one keeping bees on the improved system residing in Suffolk, or in the adjoining counties, who would grant him the privilege of a view of their apiaries. During May he will be on a tour through Hampshire, Surrey, and Sussex, and begs in those counties a similar favour.

A Pitminster Bee-keeper.—The bees built drone-comb on the outside frames which had just been deprived, because the space was created at a time when honey gathering occupied more of their attention than did the increase of their population. Cut out one of the combs *now*, and place the empty frame in the centre of a strong stock, and it will be filled with worker-comb, and in a week the other may be so treated.

Addresses.—We most earnestly beg of correspondents to send envelopes addressed, even though they be not stamped, to save us the time and trouble involved by our being obliged to refer to previous documents to find the same.

*** We have given four extra pages this month, but are obliged to postpone communications from 'A Renfrewshire Bee-keeper,' 'A Lanarkshire Bee-keeper,' 'J. H. Eldridge,' and 'J. E. Briscoe.'

Covers for Binding the British Bee Journal, *may be had, price 1s. at the Office, Fairlawn, Southall.*

FOREIGN BEE JOURNALS.

Arrangements have been made by which the undermentioned valuable Bee papers may be ordered through the office of the *British Bee Journal*, and the trouble of obtaining Foreign Post-Office Orders prevented.

THE BEE-KEEPERS' MAGAZINE and THE BEE-KEEPERS' TEXT-BOOK (America).

Published by KING & SLOCUM, Hudson Street, New York.

Prices—

The Bee-keepers' Magazine, per ann.	6/3
The Bee-keepers' Text-book, paper cover	1/8
,, ,, bound	3/2
The Magazine for one year, with paper covered Text-book	7/3
The Magazine, with bound Text-book	8/2

THE AMERICAN BEE JOURNAL. Established in 1861 by the late SAMUEL WAGNER. Is published monthly, at Chicago, Ill. at $2 a year. Its contributors are the best, most experienced, and successful Apiarists in America and Europe. It is the oldest, largest, best, and most reliable Bee paper in the English language.

Published by THOMAS G. NEWMAN, 196–198 South Clark Street, Chicago, Illinois. Price, including Postage, 8*s* 4*d*.

All orders must be accompanied by Cheque or P.O. Order, payable to C. N. ABBOTT, Fairlawn, Southall.

GLEANINGS IN BEE-CULTURE, and OUR HOMES (America), by A. J. ROOT, recognised generally as one of the foremost of American Bee Pioneers, may now be obtained through the Office of the *British Bee Journal*, without the expense of sending Foreign P. O. Order.

Gleanings, Post free from America	5/0
Ditto, with Our Homes	5/4

Cash with Orders to C. N. ABBOTT, Fairlawn, Southall.

L'APICOLTORE.

GIORNALE DELL' ASSOCIAZIONE CENTRALE D'INCORAGGIAMENTO PER L'APICOLTURA IN ITALIA, SEDENTE IN MILANO.

Periodico fondato nel 1868 esclusivamente dedicato alla coltivazione delle api. Riccamente illustrato da accurate e numerose incisioni. Esce dal 1° al 5 d'ogni mese in fascicoli di 32 pagine con copertina. Abbonamento annuo anticipato Lire 6. Per l'Inghilterra Lire 7 franco di porto.

Dirigere vaglia postale al Cassiere dell' Associazione Centrale d'apicoltura, Conte Carlo Borromeo, Milano, Via Allessandro Manzoni, 41.

THE ANATOMY OF THE BEE. Thirty beautiful Chromo-lithographic Plates. Published under the auspices of the Italian Central Bee Association. The usefulness and artistic merits of this complete work have been acknowledged throughout the Continent, and Prizes were awarded to same by the Apicultural Congress held at Halle, and at the Vienna Exhibition.

Price for the work complete, One Guinea.

Address, J. CAMASCHELLA, 10 Derby Villas, Forest Hill, London, S.E.

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Fifteenth Edition. Price One Shilling.

SEVENTY POUNDS A YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to Mrs. J. W. PAGDEN, The Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 36.

JAMES LEE, of Bagshot,

Abridged Price List of Apiarian Supplies for 1877,

With recent Testimonials and Prizes.

From the Hon. Sec. Dorsetshire Bee-keepers' Association.

'I am very much pleased with the Hive you sent. It has been much admired by every one that has seen it, for its appearance and good workmanship.

'C. E. NORTON, Shaftesbury.'

From W. Broughton Carr, Esq. Higher Bebington, Cheshire.

'Certainly nothing can surpass your workmanship.'

All the double-cased hives are well painted, and require no further protection. All goods are securely packed and placed on the rail *free of charge*.

PRICE LIST.

	s.	*d.*
Cheshire Prize Hive, pair Supers...	37	6
,, ,, with Sections	35	0
Abbott's Prize Hive, unpainted	30	0
,, ,, painted, and with Supers ...	37	6
Lee's Alexandra Prize Cottagers' Hive, Roof and Sections complete	12	6
Lee's Prize double case ditto, with Supers ...	35	0
,, ,, Woodbury ditto	5	6
,, ,, Sectional Supers, the set of 16 ...	2	6
,, ,, Glass Bar-supers, the pair	5	6
Cheshire single case Hive	8	6
The Raynor Hive	15	0
,, Floor	3	0
The Cowan Hive	15	0
,, ,, double-cased and Supers ...	37	6
Prize Carr-Stewarton's Stock Boxes, 10/6 each, 6 for	60	0
Carr's, with treble glass back	19	0
Bar-frames in pieces, ready for glueing up, all double mortised, per doz.	1	6

Note.—Most of the above can be supplied in parts, halved in at the corners, ready for nailing together, at greatly reduced rates.

Further testimonials and references from those who have purchased in this way on application to J. L.

Cowan's Prize Extractor, 'The Rapid'	60	0

Very simple. A child can work it. Strong, and does its work thoroughly.

Unicomb, or Observatory Hives, from 10*s*. 6*d*. to	105	0

Cheshire Prize Syrup-can and Shovel, Smoker, Nucleus Hive, Feeder, Guide-comb Maker, Transferring Boards, &c.

Bee Veils, Gloves, Knives, Queen Cages, Straw Skeps, all sizes, Syrup and Barley Sugar for Winter feeding, and all other requisites.

Any of the above Hives can be finished with treble glass sides and shutter. Straw Frame Hives as true to shape as those of wood. A reduction for more than one. Special terms to large purchasers.

Hives for utility, strength, workmanship, and good material, unequalled.

THREE SILVER MEDALS and One Certificate at the Alexandra Palace, Special at Exeter, Ditto and First at Sherborne, Second at Grantham. Three First, One Second, and Two highly commended at Worcester.

Orders are being booked for the American Comb Foundation.

Agent for Worcestershire—

Mr. HARVEY WALL, Rashwood, Droitwich.

London Agents—

Messrs. GEORGE NEIGHBOUR & SONS, Regent Street and High Holborn.

From S. WYATT, Esq., Westbrook, Tenbury, Worcester.

'The Hive I had from you in 1871, after being in constant use in the open air ever since, is now in as good condition as the day I bought it.'

From Mr. C. TITE, Wyndham Street, Yeovil.

'I am delighted with the Hive; it has been greatly admired for its solidity and finish.'

JAMES LEE, Manufacturer, Bagshot, Surrey. fo. 39.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 50. Vol. V.] JUNE, 1877. [Published Monthly.]

Editorial, Notices, &c.

JUNE.

The past month of May has been anything but a merry one for bee-keepers, for in a large majority of apiaries the blighting east wind that prevailed through the whole of the time undid the progress that had been made during the earlier months of the year. The month of May, as a rule, is 'a fraud;' it is *not* 'a merry one;' and bees *do not* hum 'from flower to flower,' as is suggested in the old song whose refrain so purporteth, and we propose that the stanza to that effect shall be altered in the interest of bee-keepers in this wise:

'Twas in the bitter month of May,
When east wind did the bees benumb,
And those 'but late alert and gay,'
Gave forth no more their cheerful hum.

It is greatly disappointing to beginners in bee-keeping to find their early efforts to promote the advancement of their stocks so cruelly paralysed as they have been during this past May; and we hope that in future they will not look upon it as 'the month of swarms,' as the probability of the fulfilment of the hope inspired thereby is so highly problematical. One of the greatest mistakes made in bee-culture is the too early forcing of breeding, and artificial swarming. Stocks that stood well all the winter and were active in the delusively fine month of February were in too many instances stimulated by their owners into excessive breeding, and became too strong in brood to withstand the cold weather which followed, and many are now suffering from the effects of chilled brood, which during the period of cold they could not remove; and which having rotted in the cells presents now the appearance of 'foul-brood,' and may possibly degenerate into that disease.

Many under the influence of a fine day or two, and the early appearance of drones, artificially swarmed their bees in April, and are now surprised to find that neither stocks nor swarms are improving. How easy it is to forget the adage that 'one swallow does not make a summer!'

Foul Brood.—This most insidious of all diseases should now be carefully sought and stamped out, or it will spread throughout *the apiary*, and nullify all efforts to promote profitable bee-culture, and our advice is now practically the same as that given long since by Mr. Woodbury, in his day the foremost man in British apiculture, 'Do not tamper with it, but *stamp it out*.' Hives that are afflicted with it are in a somewhat analogous position to those that have lost their queens, inasmuch as in the one case no brood is produced, except occasionally by fertile workers, which is of no value, and in the other the brood that *is* produced not only does not come to perfection, but exhausts the vitality of the bees that have tended and nursed it, and in both instances dwindling is the consequence, and robbery by other stocks the inevitable result.

Here the analogy stops; for in the case of queenless stocks, the destruction of a few old bees is all that can further ensue, whereas the robbing of a foul-broody hive imports the disease into that of a stronger and more prosperous colony; and if not quickly observed, the combs remaining in the former may become the resort of bees from many other stocks, and the virus of the disease may thus be conveyed to the whole apiary. Unfortunately the mischief does not always confine itself to the apiary in which it first germinates, or to which it is imported, but may, and too often does, spread throughout a whole neighbourhood.*

Having the main feature in view, whether queenless or diseased (or in the nature of what is often called '*a weak stock*'), any colony that wears the semblance of listlessness, a dawdling, 'don't-care' way of 'lounging' at the entrance with apparently no impulse for work, should

* This is notably the case in the district of Ealing at the present time. At the Crystal Palace Show, 1875, the whole of the stocks bought for manipulation were affected by the disease, and some afterwards found their way to that suburb, and the consequence has been, that whole apiaries have been depopulated in that neighbourhood, notwithstanding the efforts of a skilful chemist to stay the plague by the use of the new German remedy, salicylic acid.—Ed.

be thoroughly examined, and if found with the disease, which may be known by the sealed brood-cells being sunken and perforated, and containing decayed viscous matter of the colour of dirty coffee instead of pure white nymphs, or bees almost fully formed, should be at once condemned, and if possible, removed from the apiary (with all possible celerity) to a distance, or to a cellar out of reach of other bees, and should be then and there destroyed, burning or burying the brood combs, and taking care that none of the honey is obtainable by robbers, or given as food to other stocks until it has been thoroughly boiled. Skeps, in which the disease is most frequently found in its worst stages, should be buried or burnt also; but wooden bar-frame hives, being more easily cleaned and withal of more value, should after boiling be thoroughly disinfected before being again used. In moveable comb hives the disease may often be detected in its earliest stages, in which case the removal of the queen will perforce stop the increase of brood, and the infection will, in a sense, be arrested; and while the bees of the colony are endeavouring to raise a new queen, which in an affected hive they seldom succeed in doing, the healthy brood will have nearly all hatched out; in which case, there being no queen, a healthy sealed queen-cell should be given, for them to hatch out. As soon as this has been effected, the whole of the combs should be removed from the hive, and treated as before suggested; and the bees left as a naked swarm for twenty-four hours, after which they should be shaken into another hive, and allowed to remain there for a like period, until the honey brought with them in their honey-bags has been consumed, when they may be furnished in a third hive with clean, wholesome combs in which to start afresh.

The endeavour to *cure* foul brood is seldom successful; the foregoing points only to a means of saving the living bees, as it is often found that the trouble involved and the uncertainty of success make the game not worth the candle.

Ligurianizing.—The safest method is that which we have continued to recommend from the first in our public career, viz. by the small swarm, instead of by the purchase and often vainly-attempted introduction of queens.

Let the skilful bee-master take the risk of introducing his imported queens into his own stocks, and when effected, the amateur should purchase of him a small swarm of 2000 or 3000 bees, with the Ligurian at their head, costing about the price of two queens. Having obtained them he should drive all the bees out of his best black stock, making them into an artificial swarm, which should be placed on an otherwise empty hive on their own stand. The hive from which they were driven should be put upon a new stand, and the small swarm containing the Ligurian queen should be put into them, to hatch out the brood and form an established stock. This method of exchange of populations may be continued to any extent in an apiary, and every stock may be ligurianized without further expense or risk of loss, such as is sure occasionally to occur when queens are introduced alone.*

Artificial Swarming may now be proceeded with, as per directions to be found in our leaflets on the subject,† than which there are no better methods known. Care should be taken not to take too many bees from the parent stock, or, after it has been removed from its stand to another position, and other bees desert it to go to the original location, it may be too weak in bees to ensure the hatching out of the brood. To prevent this in some degree, it will be well after having driven the swarm to close the parent hive, or remove it to a dark cellar for some hours, that a goodly number of young bees may be hatched out prior to the desertion indicated taking place. Do not forget to provide, if possible, sealed queen-cells or queens for insertion in the hives which have been deprived of their swarms, as much valuable time will thereby be saved to the colonies.

Introducing Queen-cells.—After depriving a colony of its queen, whether with an artificial swarm or for any other reason, it will be well to allow at least a day to elapse before attempting to introduce a queen-cell, that the bees may have time to discover the necessity for it. In putting the queen-cell into the hive, it is quite immaterial whether it be placed at the top, bottom, or in the centre of the hive, unless the weather be cold, when the centre will be preferable. If the weather be warm, the queen-cell may be fixed into a piece of comb and placed under a glass on the top of the hive, that the hatching out of the young queen may be observed. The chief care to be observed is to fix the cell with its point downward, and with space below it to permit the young queen to creep out when the end of the cell is opened.

Introducing Queens.—The making of artificial swarms affords excellent opportunities for the introduction of alien queens, because the old bees which are the chief opponents to usurpation will have departed. Immediately on the swarm having been made, a queen should be introduced alone, in a cage formed of wire-work or perforated zinc, about three inches long, one broad, and a quarter thick, in shape like a

* For further proceedings see Leaflet on Ligurianizing, post-free one stamp from our office.—Ed.

† Leaflets on Artificial Swarming for one stamp from our office.—Ed.

flat tube, the ends being fitted with cork or wooden plugs. The queen in the cage should be put into the centre of the brood-nest, and the bees and combs should be sprinkled with scented syrup, to change the odour of the hive. Forty-eight hours afterwards, the sprinkling should be renewed, and the queen set at liberty. Many bee-keepers, thinking to be over-careful, insist on putting some of the queen's attendants into the cage, but we do not approve of that course. The queen *alone* will be fed (as a general rule), but stranger bees being present in the cage with her may so provoke the anger of the community as to cause their close imprisonment, and hence they, with their queen, are starved to death.

In a box-cage, which is fixed on a comb, enclosing some unsealed honey-cells, the case is different, as the bees enclosed in it with their queen can help themselves and feed her majesty, and thus gradually acquiring the odour of the hive, are recognised as friends, and welcomed.

Queenless Stocks.—We cannot recommend a better purpose for these than their being utilized to hatch out the brood of a stock from which all the bees have been driven to form an artificial swarm.

There is a great deal of sentimental nonsense in bee literature about the love of bees for their queen, and the delight of a queenless stock on being presented with a new sovereign; how they instantly accept her and feel better; but in our experience the attempt to re-queen a (for some time) queenless stock has generally proved a failure. A queen-cell will be readily accepted; but a queen, when released, will (as a rule) be encased, or, in other words, hugged to death.

Importing Queens.—It may be *apropos* to here mention that in consequence of the untoward weather on the Continent, the transmission of queens from Italy and Switzerland has been much retarded. Great inconvenience has been occasioned in England by such mischance, but perhaps this allusion may allay in a degree the vexation caused by the disappointment ensuing thereon.

Uniting Stocks.—This term usually implies the uniting of the bees of two stocks (queenless or otherwise), and placing them in one hive, but it may mean the uniting of the bees *and brood* of two weakly ones to form a strong one in one of their hives. In the former case the uniting is a simple game—drive, or shake out, all the bees of both stocks into one receptacle; shake them up together, sprinkling them with scented syrup; sprinkle also the hive and combs into which they are to be placed; pour them in, and place them on their stand. Stocks to be so united should stand in close proximity to each other, otherwise there will be a difficulty in effecting their union through the bees persisting in flying back to their well-known stands. If a queen of a stock is considered valuable she should be caged for a day or two, and the other (if there be one) should be removed; otherwise, the bees will settle the question, who shall be their sovereign, and one will certainly be slain.

In uniting the bees and brood of two stocks, if they are in skeps, it will be necessary to transfer them to a bar or frame hive, instructions for doing which will be found in former pages.* Both populations should be driven out of their hives, sprinkled with scented syrup, put together and mingled in one hive, and placed upon the stand they are to occupy. The brood-combs, when transferred, should also be sprinkled with the syrup, carried to the stand, and put in place of the skep containing the bees; the bees being shaken out on to the tops of the frames; when a light quilt being laid over them they will gradually descend. When comfortable between the combs, the remainder of the quilting should be laid on, and the hive covered down.

Uniting Swarms.—When this is considered desirable, either as a means of keeping down the number of stocks, or for the purpose of forming a huge colony, the first swarm that comes forth should be placed in the position the whole is to occupy. When the second comes, it should be hived in a separate hive until dusk in the evening; two sticks should then be laid upon the ground in front of the swarm first hived, the second swarm should be carried there, sprinkled with syrup, and shaken on to the ground between the sticks; the first swarm should then be lifted from its floor-board and gently set upon the sticks over the scattering bees, when the latter will run in, and being well laden with sweets will be welcomed. One queen will, of course, be slain if not previously removed.

Saving and Restoring Queens.—Many amateurs drive out swarms of bees for the purpose of uniting them, and few think it advisable, prior to uniting, to remove one of them, so jubilant are they in the conviction that the bees, or queens, will 'fight it out,' but we cannot understand why it is necessary to let even one be killed, when she would, in ninety-nine cases out of a hundred, be of great value if restored to her home. We therefore urge the advisability, before uniting swarms, of removing the surplus queens, and restoring them to their hives, to prevent what is often a great waste of valuable time in raising others. There are occasions when destroying queens

* 'Transferring' forms the subject of a leaflet which may be had post-free for one stamp.

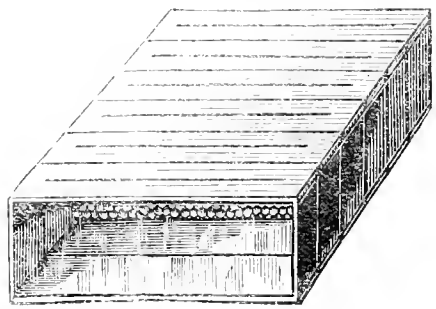
will be good policy, but if one has been sufficiently prolific to produce a good swarm, she must surely be worth retaining in the hive for another season.

SUPERING.

Next to swarming, supering is recognised as one of the most important proceedings necessary in an apiary, but *when and how to do it* frequently puzzle and bewilder the amateur. If supers be put on too soon, the additional space given permits loss of heat from the stock hive which is often injurious; and if too late, the swarming *idea* will have been engendered, and the supers, though readily 'taken to,' may become but lounging saloons for surplus populations, while they are waiting the signal to swarm. We have laid down as a general rule that supers should be put on 'when it has been ascertained that the hives are well filled with combs; have large and increasing populations, and plenty of eggs and brood in all stages of development; and that the ingathering of honey from the orchards and fields is in excess of the every-day requirements of the bees themselves.' The last-named condition implies one other, viz., that the weather shall be warm and genial; and it is important to remember that unless the climate is favourable to the secretion of honey in flowers, it will be impossible for the bees to procure a superabundance of it. Warmth by night, as well as by day, is highly important both for the secretion of honey, and for the building of combs by the bees in which to store it. It will readily be understood that more comb is built by night than by day, because the whole population being at home, greater heat is generated, and as comb cannot be built, or wax secreted without great heat, the importance of warm, close covering for supers to prevent its radiation is evident. The little straw caps placed on straw skeps would often be more successfully filled than they are if attention were paid to the necessity for preventing the loss of heat through the crevices at their base. A little mortar, clay, plaster of Paris, or even cow-dung, sufficiently moist, will answer as luting, and the latter, though not all that can be desired, will be found useful by the cottar, as it is cheap, will dry nearly white, and withal forms a tough plaster.

Supers, like hives, are of various forms, and great diversity of opinion formerly existed as to which was the best, but it is now pretty generally agreed that they are the best that offer the most conveniences to the bee-keeper ;* due regard being had to the comfort of the bees, and in these respects sectional supers are everywhere acknowledged to be in the van.

The individual sections of which the supers are composed are on an average of about the size and shape of an ordinary brick, and like bricks they are intended to be put together to form a bulk, as shown in engraving, though,



unlike bricks, they form an open box instead of a solid block. The ends of the box, which may be increased to any size by the addition of other sections, are closed by panes of glass, which give full view of the interior, and enable the bee-keeper to watch the progress of the work going on in them.

Any number of sections may be piled together to suit any hive; they may be laid in rows, side by side, or row upon row, admission being given to the upper rows through holes to be cut or bored in the tops of the lower ones.

It is seldom, however, that a large pile is necessary, for being '*in sections*' the full ones can be readily removed as soon as they are completed, and empty ones put in their places. The full sections can then be stowed away in paper, and preserved in their pristine beauty and purity, whereas in any other kind of super the combs first filled have to be left on the hive until the whole are completed, or until the slackening of the incoming of honey warns the bee-keeper that the end of the harvest is approaching, when a super only partly finished has to be removed.

In placing the sectional supers on a hive it is necessary to remove the quilt, which may readily be done if a little smoke is first blown under it, when, if no adapting-board is used, the sections should be set down on the tops of the frames, and any parts not covered by the sections should be covered with quilting of any kind, or slips of wood may be laid over the openings between the frames, merely to keep the bees within.

Sectional supers may be subdivided into small compartments by slipping glass between any of the joinings.

Supers of any kind should have either wood or glass bottoms of their own, removable with

* What a pity it is that the verdict as regards hives, cannot be based on a similar proposition.—Ed. *B. B. J.*

them, and so arranged that the bees can build down to them, thus avoiding the necessity for breaking or cutting the combs on removing them. Sectional supers may be removed *seriatim*, the bees being brushed off each at once. Other supers when removed should have the majority of the bees drummed out, as in driving, and should then be put into a box, or on to a board fitted with a bee-trap, to permit their escape, but prevent their return.

GLUTS OF HONEY.

A sudden glut of honey will sometimes induce the bees to fill up every available cell in the hive with it, principally because they cannot build new combs in the supers with sufficient rapidity to receive it. Aye, and they sometimes collect so much that they have nowhere to store it, and clusters of honey-laden bees may be found under the floor-board or roof, waiting for cell-room to be created, either by the hatching out of young bees in the hive, or by the formation of new combs in the supers. Should there not be sufficient space within for the latter purpose, they will build combs where they then are and deposit the honey in them. This is often very surprising to their owner, because it usually happens when there is still some vacant space in the supers, but the reason for their singular conduct will be found in the fact that their presence within the hive or supers would so increase the heat that the combs therein would soften and fall.

Such a sudden incoming of honey is often highly prejudicial; for the cells being suddenly filled as quickly as they are vacated by the bees, prevents further oviposition by the queen, and the all-necessary recoupment of numbers in the hive, and therefore in a very short time the population will be so greatly reduced as to be in danger of extinction. To prevent this result it will be well during the inflow to remove the supers and extract all the honey that can readily be got at from the combs in the stock hive—an operation that may safely be performed in the middle of the day without fear of creating a spirit of robbery, for when honey is freely obtainable from the fields the bees despise that offered second-hand, and will not notice it.

FEEDING SWARMS.

During bad weather, when the bees cannot get abroad, swarms, whose combs are not completed, should be fed to prevent the cessation of comb-building, because when once stayed the impulse for building will not be renewed until a glut of honey renders store (*i. e.* drone) cells necessary, and in the meantime the operations of the hive will have been confined within the combs already built.

PREVENTING CASTS OR AFTER-SWARMS.

This operation is not certain where straw skeps are used, because of the impossibility of seeing between and through the combs for the purpose of excising the superfluous queen-cells, but in moveable-comb hives may be insured by the examination of each comb individually after the first swarm has gone forth. The common practice is to destroy all the queen-cells save *one*, but it is not always wise to trust to so slender a hope, and therefore we lean to the more lazy practice of allowing casts to come forth, hiving them, and returning them to the parent stock in the evening of the day of swarming. Doubtless there is a possible danger, from the casts being headed by virgin queens, that they may fly straight away, but that is counterbalanced on the other hand by the chance that the one cell left in a hive may prove an abortion. In returning the casts to their hives, it is only necessary to follow the directions given above for uniting swarms, except that the sprinkling with syrup may be dispensed with.

VALUE OF CASTS.

When increase of stocks is the object, casts, *i. e.* after-swarms, are often worth preserving, for, being composed of almost all young bees, they possess extraordinary vitality, and are capable of long-continued labour, added to which they almost invariably build worker-comb only during their first year. There is the inherent danger attending the fertilization of their young queens, to which all after-swarms are liable, and on that ground they should be placed in moveable-comb hives, that they may be readily examined, so that if the queen be lost the bees may be utilized, and not allowed to dwindle away, or disperse.

SHADING HIVES.

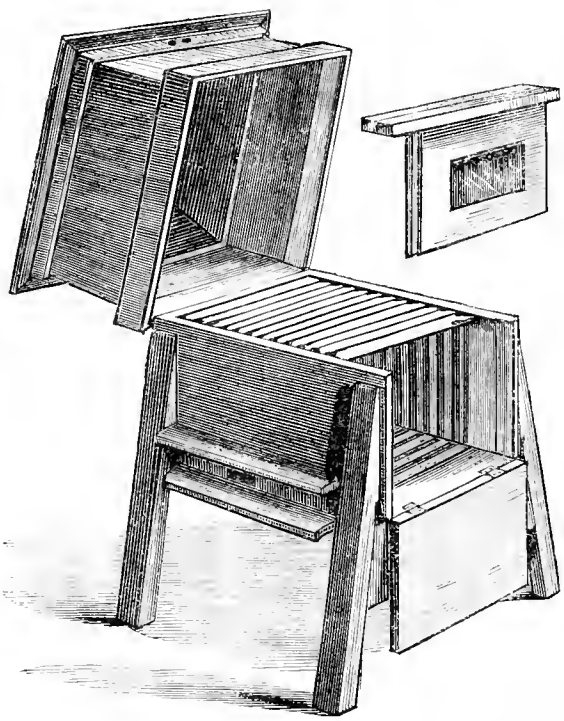
During the heat of the (so-called) Midsummer sun, though we seldom now-a-days get much of it until August, hives, except those well protected by outer cases, should be thoroughly shaded; and it would be well if ALL could be so far screened as to prevent their alighting-boards from becoming like hot oven-tiles for the bees to march over. The shading apparatus would be better if detached from the hive, or a sudden squall of wind might upset the whole.

TRAPPING DRONES *v.* PREVENTING THEIR PRODUCTION.

A good deal of stress is laid on the necessity for trapping drones during the summer, but we much prefer to prevent their undue production. Cut out the superabundant drone-comb from the frames and splice in worker-comb. But, says the reader, where are we to get worker-comb from? and our reply is, that the worker-combs and brood of one or more hives cannot be better used than in displacing the drone-comb of others in the apiary.

Make an artificial swarm from one of the stocks, driving out all the bees, and put them on their own stand; then cut and splice as long as there is necessity, and if any worker-comb remains give it to the artificial swarm. If more comb is required make a second swarm in the same way, and divide any surplus after the splicing, between the two. This will be much more economical than permitting the production of drones and then slaying them.

NEIGHBOURS' PHILADELPHIA HIVE AND SECTIONAL SUPERS.



The distinguishing feature in this hive is the facility afforded for taking out the frames of comb from stock-hive whilst the super is on.

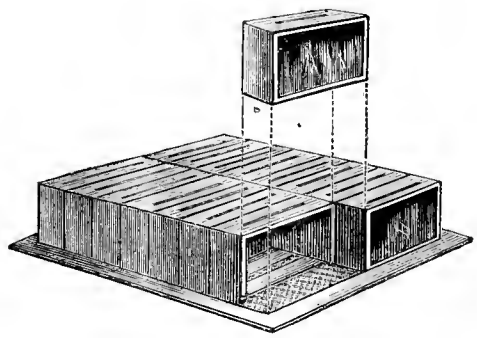
There is a moveable side to the stock-hive, which allows room for removal from the end, or, if no super is on, the frames can be lifted out on top, as with other hives. This moveable side, or dummy, has a window, and there are also windows at the back and at the other side, so that a good inspection can be made. The floor-board, which is moveable, projects $2\frac{1}{2}$ inches along the front, thus forming a convenient alighting-board. There is an entrance 9 inches wide, and the space can be lessened by two sliding shutters. The crown of the stock-hive is of straw and wood, with a feeding-hole. Neighbours' new sectional or divisional super is used on top; and when there, a perforated zinc adapter is put on, which takes the place of the straw crown. The stock-hive contains twelve frames.

The upper part of the cover falls back on hinges kept in position by wire or chains.

The outside size is 25 inches by 18, and it is about 24 inches high. The stands are 11 inches high.

The price of the Philadelphia Hive, complete, with sectional supers and perforated zinc adapter, is 2*l.* 2*s.*

Sectional Supers.



These receptacles for honey-comb are each about 7 by 2 inches, so that fourteen of these, in two rows, occupy the same space on the perforated zinc as the divisional super, to which they are very similar, except being in smaller parts. The price of the set is 4*s.* 6*d.*

WEST OF ENGLAND SHOW.

Will you please note in the *Journal* that the West of England Agricultural and Apiarian Show will be held at Taunton on August 16th? Amongst other money prizes, will be offered a silver cup for competition for best super or supers from one stock, not less than 40 lbs.—Chas. Lewis, *Taunton, May* 14.

WOLVERHAMPTON AND STAFFORDSHIRE BEE ASSOCIATION.

At a meeting held at Molineux House, Wolverhampton, on Wednesday, April 11th, the President, J. E. Briscoe, Esq., in the chair, it was determined

to hold the Show for 1877 in connexion with the Cottagers' Horticultural Show, at the end of August. All exhibitors, except cottagers, must be members of the Association. The Subscription is 2*s.* 6*d.*

Rules may be obtained of the Rev. W. J. Frere, St. Mary's Vicarage, Wolverhampton, Hon. Sec.

At the Ealing, Acton, and Hanwell Horticultural Society, to be held in the grounds of the Vicarage, Ealing, on Wednesday, the 11th July, three prizes of 12*s.*, 8*s.*, and 5*s.* respectively, are offered by Harcourt Turner, Esq., for the best 'Glass, jar, or box of honey in unbroken comb, as deposited by the bees.' The competition is open to all.

ARRANGEMENT OF SHOWS.

The following are fixtures for Bee and Honey Shows for 1877 :—

July 11.—Ealing Horticultural Society.
Aug. 7.—Crawley and Ifield, Sussex.
„ 15, 16.—Salop, Shropshire.
„ 16.—West of England, Taunton.
„ 23.—Dorchester, Dorset.
„ 29.—Sherborne, Dorset.
„ 30, 31, and Sept. 1.—East of Scotland, Dundee.
End of Aug.—Wolverhampton.
Sept. 11.—Grantham.

Secretaries, please forward early intimation of fixtures for coming Shows.

DORSET.

An interesting meeting was held in the school-room, Compton Abbas, on Monday evening, May 14th. The chair was taken by the Rector, the Rev. P. H. Dyke, who, in a few appropriate words, introduced Mr. C. Tite, of Yeovil, to address the meeting.

Mr. Tite first gave a short account of bees and bee-keeping, and the natural history of the bee; after that he explained the different ways of bee-keeping and kinds of hives used, and then replied to several queries that some of the cottage bee-keepers in the audience put to him.

The remarks were all thoroughly practical as well as instructive, and we trust a spirit of inquiry has been started in that neighbourhood that will ultimately produce good results. The address was illustrated by diagrams, models, specimen hives, &c., and altogether a most pleasant and interesting evening was spent.

LECTURE ON BEES.

A Lecture on Bees and Bee-keeping was delivered, on Tuesday, 1st of May, 1877, at the Old School-room in the village of Alphington, near Exeter, by Mr. S. B. Fox, of Exeter. The Rev. Dr. Dennett presided, and there was a large attendance. The lecturer alluded to the natural history and anatomy of the bee, and described the various methods of management, showing that by proper treatment these industrious insects may become a source of great profit to their possessors. The lecture was illustrated by various diagrams provided by the lecturer, and Mr. W. N. Griffin, Hon. Sec. to the Devon and Exeter Bee-keepers' Association, exhibited various hives and supers, also a honey extractor and other bee appliances. At intervals during the evening the Society of Alphington Ringers played most skilfully on their hand-bells.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

WHAT HAS BEEN SAID OF US.

Letter of One Bee-keeper to Another.

I am really not an authority in any way upon bee-keeping, although I have been mixed up with it now a good long time; and if I had not been extremely immersed in business, besides being much addicted to sickness either myself or in my family, so that my bees have frequently gone wrong for want of attention at critical periods, I have no doubt I should have known as much about it as some of the folks who are *thought* to be great authorities. In all matters of doubt I have always pinned my faith to Mr. Chas. N. Abbott, of Southall, Middlesex. I don't believe there is a man alive who has a greater practical acquaintance with bees and their vagaries than he has: I am sure there are a *precious* few who know anything like so much. It is worth while for anybody, even if he has only a single hive, to subscribe to the *British Bee Journal* edited by him. It is in itself a vastly interesting periodical, chock-full of information, and most ably written. One of its most curious and valuable features is that every subscriber has the privilege on certain conditions of obtaining immediate advice on matters of difficulty. But I cannot do better than make you a present of my last number as a specimen.

However, whilst I disclaim being an *authority*, yet I have not the smallest doubt, *in my own mind*, what is your misfortune. Your hive is queenless, or, at all events, dwindling away from some cause, and the quantity of bees you see in the day-time must be robbers. If you have not done anything to prevent it, they have probably taken every bit of honey away. I should think myself you ought to examine the hive, and if you find it queenless—or if you find really a very few bees—you may have some reasons for knowing that the queen if there is old—to unite them to one of your other hives, taking away the honey that is left. If *I* were in your case, I should give Mr. Abbott more detailed information, and ask him whether he thought it advisable, if there is a queen, to feed the stock up slowly, so as to pass the winter. I have my own opinion, but do not think anybody could do more than hazard an opinion without more facts.

I have mislaid your former letter, but have been meaning to write to you to say that as soon as I found you had a Nutt's hive, I ceased to wonder at your indignation against wooden hives. They must not be judged by Nutt's form. I began bee-keeping in a hive I made myself after Nutt's pattern, and it lost me certainly one, and I believe two valuable Italian swarms, and the stock itself after all utterly

perished in it. I believe *some* people can manage them, but I utterly abhor them. I have broken mine all to pieces, and would not accept another as a gift.

If you decide to unite these bees to another stock, and have never seen it done, I *think* you will find instructions in some of Mr. Abbott's Leaflets that I sent you down.—*Published by permission*, Ed. *B. B. J.*

ARTIFICIAL COMB-FOUNDATIONS.

(*From the 'Journal of Horticulture.'*)

Many of the readers of the *Journal of Horticulture* will remember that two years since at the Crystal Palace I exhibited a method of making a guide by painting with molten wax upon a wet cast of plaster, against which the bar or frame was so placed that the wax-sheet produced, while it freely left the plaster, adhered most firmly to the dry wood, and was in the exact position it required as the mid-rib of the comb to be formed upon it, and was in addition embossed with the rhomboidal forms which constitute the bases of bees' cells, since the cast was itself taken from a German engraved plate. Using these guides I soon found that the rhomboids just referred to hardly seemed to the mind of the bees, and measurement revealed the fact that the German plates gave the cells of too small a size, making fifteen and a half cells to the 3 inches, while the comb from a considerable number of hives gave a mean of fourteen and two-thirds cells in the same space, from which mean none of the examples differed materially. In order to accomplish the double object of giving bees cells of the exact magnitude and sheets made in the manner already explained which should fill or nearly fill their frames, I commenced attempting to prepare casts from natural comb, and succeeded by means some time since explained in a contemporary, and also in my 'Practical Bee-keeping,' but which space forbids me now to more than outline.

Having selected old and tough comb, all worker, and as flat as I could find it, I cut down the cell-walls on one side till the work commenced to get ragged, when I poured melted tallow into the truncated cells, and then cut again, until the cell-wall had been almost wholly removed. The tallow held the pupa-skins against the knife, and the work progressed most neatly. Removing the tallow and flattening the comb, and subsequently taking a cast in plaster, I got a matrix for my sheets which enabled me to obtain results which I may now detail. Placing a frame containing one of these sheets in the middle of a stock, I found in twenty hours that the comb was completed and the middle part was filled with eggs. The cast was not prepared until the time for profitable swarming last year had passed; but in the latter part of June I obtained a swarm by purchase, and placed it in a Cheshire hive, every frame of which contained these sheets to the depth of 6½ inches. In three days the hive was nearly filled with comb, while at the evening of the twenty-third day after hiving brood was hatching from the bottom edge of more combs than one, and the bees at once accepted a super which was placed over them. The combs were all absolutely flat, and the hive did not contain, I believe, ten drone-cells. A great point had now been gained, for every bee-keeper of experience knows the vexatious difficulty of getting rid of excess of drone-comb. In the height of the honey season it is all but impossible to get bees in stocks to build cells of worker size. Cut out drone-combs you may, but in nineteen cases out of twenty you will only have them replaced.

Meanwhile the Americans had been busy, and, by the kindness of my friend, Mr. Hunter, I received a supply of the renowned Long's foundations, the beautiful finish of which is well-nigh perfect. The 2-feet rule at once showed the cells to be too large for raising workers, since thirteen and a half only are given to the 3 inches. The size is, in fact, as nearly as may be half way between worker and drone, twelve cells of which give the same total diameter. A little calculation rendered apparent the immense disadvantage this excessive largeness of the cells would be to the bees during wintering, but I placed at once an experimental sheet in the midst of a strong colony. The bees, although fed, commenced working upon it tardily, whilst the next hive seemed to take my sheets made from natural comb with hearty goodwill, finishing three while the Long's foundation was only about half complete. Eggs were slowly laid in it, and now more than half the bees produced are drones. Nor is this the only disadvantage: the sheet gives much trouble by a disposition to plait at the lower edge. Since my sheets, if put into the hive bent and crooked, are made perfectly flat by the mere weight of the adherent bees, why are impressed sheets cockled and warped under the same influence? I can only at present speculate upon this point, but I believe the following is the reason. All substances, unless absolutely non-elastic, when bent under pressure are put under a certain amount of molecular strain, which operates in tending to restore straightness to them when softened. If a sheet of wax be bent it will be found, especially when warmed, to tend towards its original form. The impressed sheet is stretched and bent backwards and forwards when the form of the cell-bases is given to it. It is fixed at the top to the bar in the hive, and the warmth of the bees whilst elaborating the comb allows the sheet to reduce the bending it has received, and so to become longer than the part of it attached above. It can only dispose of this greater length by assuming a waved form from end to end. My sheets, on the contrary, are made in the form they are subsequently to assume, and consequently no disposition to elongate exists.

But the most serious charge brought against foundations is that they are commenced at the bottom and break away. In reply to this I can only say mine are always commenced at the top, and that I had the opportunity at the Alexandra Palace last autumn of showing to many prominent bee-keepers a large number of combs commenced only, but with the top row of cells all well advanced. This is so uniformly the case that I have been much puzzled as to the cause. I have tried a number of experiments which have, to a large extent, if not wholly, made this point clear, while they have brought out some very curious facts with regard to the construction of

comb itself. These experiments show conclusively, I think, that the form hitherto given to comb-foundations, both by Germans and Americans, is not that which most helps the bees, nor is it that to which a study of comb-structure would have led. Upon this matter, together with my drone-comb foundations for supers, I hope in the future to dilate, merely now contenting myself by saying that the only super I have had as yet started has its row of cells contiguous to the bar nearly finished, while the rest of the cells are all but untouched.—F. Chesnire, *Avenue House, Acton.*

COMB FOUNDATIONS.

Although not writing much, I am working. I spend one day a-week in giving lessons in transferring, &c. in different localities; and though I have transferred upwards of a dozen hives I have never had a sting, unless when inadvertently crushing a bee, neither have any of the onlookers. I doff coat and hat and tuck up my sleeves as the best protection—no veil, no gloves. These transferred stocks are in every case, after a few weeks, the best in their several neighbourhoods. Some were done on cold and rainy days in greenhouses or sheds; all have been successful.

I have just sent off to America for a comb-foundation machine—probably the first on this side the Atlantic, and as I am fully convinced of the value of the right stuff, I hope to be able to report it a success before the season is over. I find worker-comb varies from 13½ to 15 cells to the three inches, and as the latter has been reported on in American journals as most readily adopted by the queen, I have ordered one for making that size. The samples I have received, though made of rather coarse wax, are marvellous productions, the cell bottoms being as thin as tissue paper and the walls well defined, with material enough in them, it is said, to finish with.

No honey-gathering here yet (5th May), though fed hives are nearly full of bees. How I have been annoyed by the loss of queens! One skep has had six queens since September, all accepted and nearly all having bred for a week or two. I got an imported queen (sent by you in the fall) cast out two days ago with forefoot wanting and wings all ragged. She was otherwise apparently quite well, and the bees seemed pleased to have her restored, but as I found she could not keep her place on the combs I killed her. This is the second I have seen similarly maimed this season—queer, isn't it?—Wm. Raitt.

ASSOCIATION FOR HERTFORDSHIRE.

What cold, miserable weather we are having both for flowers and bees! For many days now we have not had a gleam of sunshine. My hives are all very powerful, and have passed through this long winter satisfactorily. A colony in a double-walled glass hive is perhaps the strongest, without a vestige of mildew; fourteen of my stocks have been wintered in wooden bar-frame hives, under a shed, three in the open garden, all well wrapped up with quilts and perfect ventilation at the tops. All have done well. One stock in a bar-frame hive, which I had driven from skeps in October, and had not been able to supply with sufficient food, although I gave syrup in February, and again on warm days since, deserted the hive and joined itself to a very powerful stock with plenty of food, in the open garden. I found the queen and a handful of bees clustering on the outside of the adopted hive, and the other bees had already fraternised with the inmates.

I am sorry to learn that the British Bee-keeping Association does not intend holding its Annual Metropolitan Show. I have always since the formation of the Society looked forward with great pleasure to this exhibition. There I could see and examine the many inventions to aid in successful bee-culture, besides having the pleasure of conversing with many who rode the same hobby as myself, and who would otherwise have been strangers to me. There is no doubt as to the utility of local societies, and I should much like to hear that such a society was to be established for Hertfordshire. I know no bee-keepers in my immediate neighbourhood. Perhaps through the medium of your *Journal* some who take an interest in this subject will express their wishes, and the formation of a society for this county may be thus brought about.

Wishing you every success with our *Journal*, and with your new undertakings in your new home.—P. H. Phillips, *Offley Lodge, Hitchin.*

CENTRAL AND PROVINCIAL SHOWS.

The feeling of disappointment in our ranks, when it is known that it is resolved by the Committee of the Association to dispense with its usual Autumn Show, will be widespread and general. We all look forward to it as one of the events of the year. Without the stimulus of a great central show the advanced system of bee-keeping among the community at large will spread but slowly, 'slowly, creeping on from point to point.' Provincial shows may do something for the advancement of our especial hobby, but their influence is local and does not extend beyond a limited radius. On the other hand, the glorious Crystal Palace, with the thousand and one attractions and 'things of beauty' gathered together within its precincts, is more than any one spot in the kingdom, perhaps in the world, adapted for our show. Visitors in thousands throng to it from all parts. Country cousins especially never omit to include a visit to the Palace in their programme; to return home without seeing it would stamp them 'daft' indeed, and it is entirely from the ranks of the latter that recruits are to be gathered to swell the list of the noble army of advanced and advancing bee-keepers. I could not but consider it a 'blunder' to give preference to the Alexandra last autumn. This much I ventured to predict at the time, and, unfortunately, the results proved it to be so. It is to be regretted that our last Crystal Palace Show was not held in connexion with the Flower Show. Kindred sciences should advance together, hand in hand. A Bee-Show of itself, perhaps, is insufficient to attract the multitude and amuse them throughout the livelong day.

It has been said that the greatest pleasure lies in the retrospect. It may be so. We, whose business it is to attend the show, find from experience we have no easy time of it; and, seriously, for the best part of a week we emerge from our normal quiet into a world of bees, bustle, business, bewitching blue-eyed barmaids, and bottled Bass (*apropos* of the latter, 'Here's to your very good health, my dear sir!'), and, in a whisper, I, for one, am not sorry when it is over, and once more the graceful cathedral spire of mine own familiar city is seen rising proudly over the landscape; indeed, there is even music in the stentorian shouts of the railway porters, as the 'iron hoss' draws up alongside the platform to the tune of 'Chidistar! Chid—is—tar—r—r!'—ALFRED RUSBRIDGE, *Hive Manufactory, Sidlesham, Chichester, April* 28, 1877.

DISTANCE GAUGES.

I have found out a plan for distance gauges that keeps the frames exactly in their places, and is far better than the distance pins so commonly used, and which tear the combs during manipulation. My frames are 1½ in. from centre to centre, and I cut small bits of wood of that length in the form of turn-buttons, half an inch wide, and screw them on to the frames, so that when they lie across them and touch each other they keep correct distances, yet when turned along the frame, they permit of lateral movement and easy withdrawal of combs without damage to the brood. I find it to be better than Pettitt's or Woodbury's plan.—JAS. COCKROFT, *Pitt Street, Todmorton.*

THE APIARY, KING'S SOMBORNE, HANTS.

Many thanks for inserting the article on the above, though you have deprived it of its value to most readers by not putting the hive unsupered as well as supered, or single and double, and omitting the name of 'Sailors' Bee-hive,' now the Standard Bar-frame Hive, as written over the sketches sent to you by me.

Of course, I quite understand the advertisement (one of my usual honey labels) arriving too late for insertion in your *Journal* for the busy month of May. It matters not; the whole concern has been advertised all over the country; and it is as well known as the town pump. Several tons of honey have gone round the United Kingdom in 1, 2, 3, 4, and 5 lb. sizes, well labelled.

I am sorry we have clashed about the hive, but, in truth, I took the bull by the horns, having waited two whole years in hopes of the Society proclaiming a Standard. Now, in self-defence, and in defence of persons using this hive, it has been called and adopted as the Standard, and supplied all over the country. Had any other hive or bar been appointed by authority, I could not have adopted it with my enormous connexion. I advertised the measurement of the 'Standard Bar-frame' in your *Journal* for six months; it has also been inserted in most of the leading papers published daily, weekly, and monthly, for which we have paid some coin. This was all done before I got your *Journal* and found you were calling yours the Standard.

Now, my friend, it takes two to make a quarrel, and as I do not intend to, you will have it all to yourself, as far as I am concerned.*

It is utterly impossible to alter my Standard Bar. I should have a regular rumpus with all who have adopted it. Suppose you adopt mine. The two Standards are totally different; mine is intended for honey-getting proper, on the doubling principle, and can be used for sectional supers; yours for sectional supers only. With mine, stocks can be doubled on the super or second box, filled partially, or made up of comb old enough for slinging from any other hives of the kind. The very plan advocated in your *Journal* this May.

I have one of your hives, but I fail to see how it is to be used for honey-getting on the doubling principle. My stock-boxes, or supers, for they are one and the same in all dimensions, can be used as stocks, super proper, or filled up with sectional supers. They can be used over flat-topped straw hives, and if required, bred right into. I may here say we do not leave a second entrance in super. We have known stray swarms take possession, and drones invariably, when either driven out of stock-hive or returning from flight, get into the super and gobble. I do not think there is much, if any, difference in the internal measurements of the two Standard Hives. My Standard Bar is longer, but not so deep as yours; mine have a bottom bar, which yours have not. [This is incorrect.—ED. *B. B. J.*] Mine fit inside the hive,

* We have no wish to quarrel with anyone, and least of all with personal friends; and we hope that open candour will not be considered offensive. We grant, primarily, that any hive-maker has a right, in the absence of protective copyright or trade-mark, to call his hive by any name he pleases. There can be no difference of opinion on this point; and there would be no room for complaint if the frames used by Captain Martin and ourselves were of the same size; for the adoption of 'A STANDARD FRAME,' of size to be determined by a competent authority, has been our expressed wish in these pages for a very long time, but no positive action was taken by any of the Bee-keepers' Associations; and our Hive having taken First Prize and Silver Medal at Crystal Palace, 1875; First Prize, Glasgow, 1875; First Prize and Certificate at Weston-super-Mare, 1876; First Prize at Wolverhampton, 1876; First Prize at Sherborne, 1876; First Prize, Silver Medal, at Glasgow, 1876; First Prize at Grantham, 1876; First Prize at Worcester, 1876; and received the Highest Award at the Alexandra Palace Show, 1876, as the best hive exhibited for two consecutive years:—in accord with this general acceptation, and in the absence of a decision by any special authority on the subject, we considered that we might fairly venture to name it as 'The Standard;' and we confidently assert that it was so called before any other English hive or frame received a similar name. Before Captain Martin 'took the bull by the horns'—viz. on Nov. 1st, 1876—the following, in reply to a query, appeared in the *British Bee Journal* (see p. 133, vol. iv.): 'We fear there is little likelihood of a general agreement of bee-keepers as regards a standard hive or frame; but as our hive has stood the judgment of the Judges at the Crystal Palace, Alexandra Palace, Glasgow, and ever so many other leading Shows, we feel justified in calling it the "Standard," which will henceforth be its name.'

After this had appeared, 'The Sailor's Hive' was altered, and received its new name—the first advertisement regarding the same which was brought to our notice having appeared in the *Standard* newspaper of Nov. 14th following, or thirteen days afterwards; if any appeared earlier the dates are, of course, capable of proof.—ED. *B. B. J.*

yours are flush with top of box. The object of dropping mine inside the hive a little is to prevent the wind catching the corners of the quilts when the top is taken off to feed, and the quilt, if properly cut, cannot interfere with the lid coming properly home to the wood of stock-box, thereby preventing the ingress of vermin, &c. This hive was shown at the Alexandra Palace, but was withdrawn from competition by me, as I was appointed a judge in that class.

I am glad to hear you say there has been some comment made on the subject of two Standards. I do not fear comment.* I simply court it. To my mind it is a question to a bee-keeper's mind, What he is going to keep bees for? Honey-getting, raising swarms for sale, or what? We cannot force either Standard. There are a few questions I should like to ask you about your hive, the answers to which, if published in your *Journal* next month, will probably please those who have purchased your hives as exhibited :†—

1. How are your hives to be used in honey-getting proper, or as advocated in your May *Journal* and practised by all practical honey-getters in this country, America, California, &c. &c.? I mean the doubling principle, for which plan my Standard Hive was purposely invented. According to your hive as exhibited, you have no means of placing bars of comb from one stock on top of another stock. You cannot place one stock on top of another on account of your four fixed legs; even suppose these to be cut off, what becomes of your reversible floor-board and the space thereby entailed?

2. Are the dead-air spaces or your double walls of any practical use? Are they at all necessary to the salvation of the bees in summer or winter? If these double walls are necessary, what becomes of the poor Cottagers' Hives as exhibited? I find bees winter in ½-inch red deal boxes as well as they do in straw.

My Standard Cottager's Hive is simply half a hive —that is, he gets roof, floor-board, and one box. My Standard Hive complete, means—two boxes exactly similar in size, ⅞ thick; the bars are waxed. These boxes are painted half up inside with white zinc paint; outside one is painted green and one is painted white; one floor-board, one intermediate board, one roof, painted green.

I have no secrets in bee business, and shall feel obliged greatly by your inserting this long letter in your *Journal* for next month, also my label advertisement for six months.

The extractor should be full sized, that is, to take my Standard Bar, the measurements of which are to be found in your *Journal*.

Trusting we shall meet often during the coming shows, and smoke the pipe of peace together.—P. Edgcumbe Martin, Proprietor and Manager. *The Apiary, King's Somborne, Hants.*

* Comment *has* been made by prominent bee-keepers on the fact of two hives bearing one name, and we have been blamed for giving publicity to the advertisements which have appeared, which were, it was said, calculated to mislead the public as to the interchangeability of the frames belonging to the respective hives; but we have always held that the *Journal* is open to all who can be held amenable to public opinion, 'for the discussion of all theories and systems in bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained' (see heading of correspondence columns in every *Journal*); and on these grounds we have admitted, also, the above letter, which bears more the twang of advertisement than fair comparison or friendly criticism.

In consequence of those comments, on receipt of the copy of the advertisement which appears elsewhere we hinted to Captain Martin, in a gentle way, that it would prevent further remark, and possible disappointment, if his frame were altered to the size of ours, the difference being so little; and hence the foregoing. We admit, as he says, that the two hives are totally different; and if we could but have induced him to make the frames alike, all other differences would have been ignored by us or forgotten; but the request has been refused, and therefore in future there will be at least two so-called 'Standards,' and there may be others, all, like them, totally different.—Ed. *B. B. J.*

† We in no way shrink from investigation of the merits or demerits of our hive; it has been thoroughly sifted at every Show save one, at which we could not get it delivered in time for exhibition, and on every occasion has taken First Prize; the one exception was at Exeter, where it was not fully unpacked, and the first Prize was awarded to the Griffin Hive (a modification of it), and the second to Captain Martin's Sailor's Hive, the frame-bars of which are of our pattern, 1874, now discarded by us as inconvenient for use in the Honey Extractor.

It appears in a discussion of this kind to be almost impossible, while showing the merits of one hive, to avoid comparison with the demerits of others; and therefore we prefer to rely upon the opinion of the public whom we have helped to educate, for a verdict, rather than, at this busy season, to waste time in profitless squabbling about what cannot influence this year's business transactions or remedy any of the defects which may exist in hives generally. Doubtless Captain Martin's hive is a good one for King's Somborne, where, from his own showing, the bee-pasture is all that can be desired, and it may be equally good elsewhere, we make no objection: our hive is the best we know of at the present time for all purposes, and we have a right to give an opinion.

At a future date we shall be happy to reopen the subject, if desired; but after the verdict of so many judges at so many Shows it cannot have been necessary to make odious comparisons: so for the present, at least, we will, as Captain Martin suggests, smoke the pipe of peace together.—Ed. *B. B. J.*

KILLING DRONES IN APRIL.

On Sunday, April 22nd, I observed the bees of one of my Standard hives driving out drones, sometimes two or three bees after each, exactly in the same manner as when the general massacre takes place in autumn. Now, this somewhat concerned me, as this identical hive this time last year possessed a large quantity of drones, and on examination then it turned out to be a fertile worker in place of a proper sovereign at the head of the hive. After a number of experiments I succeeded in getting rid of the pest, and had the satisfaction later in the season of seeing a fertile queen at her proper post. Partly in consequence of this, the hive in question stored only sufficient food to last them till the end of February, when I was compelled to feed them, which I did very slowly. On Monday, 23rd inst., I opened the hive in great trepidation, and instead of a similar result I found a large quantity of brood in all stages, including some little drone brood in worker comb, and enough bees to cover both sides of three combs of brood. There was her majesty quietly moving about among her subjects, and not more than about two dozen drones, who were living in harmony with the rest of the hive. Can you explain the murder of the drones

on the previous day ? I may add, that although the hive has been populated since the bad summer of 1875, there are three bars yet quite empty, and I am keeping a record of its progress on account of the mishap it sustained last year.—C. J. Smith, *Stroud.*

[Doubtless, lack of income was the cause of the massacre.—Ed.]

DESTROYING DRONES.

A correspondent at page 17 of your May number asks for hints for the destruction of drones. It is easy to destroy the drones in a hive when an artificial swarm is made by intercepting them on their passage with a plate of perforated zinc, which will allow the queen and workers to pass, but which will stop the drones. But the simplest and easiest plan is one adopted by the well-known French *apiculteur*, the Abbé Collin, and consists in imprisoning the drones in the hive by placing a bit of perforated zinc at the door, which will prevent their passage. Then, on the first really warm day, between 1 and 3 p.m., when the drones are always anxious to take their pleasure in the bright sunlight, you must gently lift up the hive, and out of it will fly all the drones in a wisp. You then put it down again, and they cannot get back, owing to the grating at the door. This may be repeated if necessary once or more times at short intervals of two or three days. Care must be taken, however, that all your hives are furnished with drone-gratings, or the drones expelled from one hive will take refuge in another. You must also be careful not to imprison your drones after a swarm has gone off from a hive, as your young queen requires to go out of her hive on the seventh or eighth day of her life to be fertilised *outside the hive* by a drone.

Perforated zinc plates, to exclude drones, should have the holes half an inch long by one-fifth of an inch high. To exclude the queen the holes must only be ·165 (or nearly one-sixth of an inch) high, and the same breadth as for the drones. I suppose sheets with holes of the proper size to exclude queens and drones respectively may be had in England, otherwise they may be procured at Paris, Brière and Co., Rue Basfroy No. 19, Faubourg St. Antoine, price 7 fr. 50 c. per sheet. The size to exclude queens is No. 35, for drones No. 36.—Lorrain, *Nancy, 24th May*, 1877.

P.S.—In my letter of this morning I omitted to say that a drone-grating ought to be placed over the hollow entrance in the floor-board, as well as at the door of the hive, otherwise the drones will encumber the door and prevent the workers going in and out. Kindly correct. *Vide* page 185 of *Guide du Propriétaires d'Abeilles*, by the Abbé Collin (Berger-Levrault Editeurs, Paris), 4th edition.

Monsieur Collin has never invented any hive. He has carefully confined himself to choosing the best hives and apparatus that presented themselves.

LAUREL AS A HONEY PLANT.

It was blowing a cold east wind this morning. I was, therefore, much surprised to find nearly all my bees almost as busy as if the white clover harvest had come. It was evident, honey was coming in from some source. They seemed to be coming from the neighbouring plantations. As there had been several wild cherry-trees in bloom, I at first thought that was the source; but soon found on getting into the plantation that the common laurel (*Prunus Laurocerasus*) was the source. There is a very large amount of this common laurel growing as underwood, and there were the bees as busy as possible at the base of the leaves on the under side, busy, gleaning, after some sort of plant-louse. I enclose you the base of several leaves on which you will see, if it is not dried up by the time it reaches you, several spots of exudation nearly as large round in some cases as the seed of ten-week stock.

On the whole leaf and on one of the bases is gummed a little insect, that on the whole leaf had yet a slight web adjoining the midrib near which it is gummed, whether this is the insect which produces the honey-dew in May or not I do not know. I have not seen any mention of this source of honey-dew in any of the books or periodicals, and should be glad to hear whether any one else has noticed it.—C. E. Fletcher, *Devon, May 20th.*

[The fact of bees gathering largely from the leaves of the common laurel was first reported to us by Mr. R. Symington, of Market Harborough, who last year noticed what has been so clearly set forth by our correspondent as having again occurred during the cold weather of the present spring. The laurel has long been recognised as a honey-yielding plant in respect of its blossoms; but we have seen no record until the present of its leaves yielding 'honey-dew.' That an insect pierces the bases of bean-blossoms sufficiently to admit of bees gleaning the nectar secreted within has been long understood, but it has been left for the present age to discover that a similar effect is likewise produced on the *leaves* of the laurel. Scarcely a mature leaf on a laurel tree can be found which has not two distinct perforations at the base of its leaf-stalk, and it is from these the bees obtain their supply of honey-dew, but the conditions under which it may be expected to flow are apparently not yet understood. Now, however, that the subject has been mooted we trust it may receive attention, as the laurel being dense evergreen may be found suitable for hedging and shelter for out-of-door colonies.—Ed.]

SECURING SUPER SECTIONS IN THEIR PLACES.

Perhaps your readers would like to hear of a simple contrivance for holding their sectionals together when on the hive. I find the following method very effective:—Make hooks, of rather stout wire, of this shape—

two being required at each side of the super, and are held together by a small india-rubber band, such as are used in packing boiler-guages; *a* catches the ends of the super. The hooks should be made of such a length that when joined by their band they will be about 2 inches shorter than the super, and when drawn on they will hold the sectionals tightly together.—B. E. E.

THE JOURNAL—CHEAP HIVES—LIGURIANIZING—THE WEATHER.

Your *Journal*, I am glad to say, has still its old power in this quarter, and through its instrumentality numbers of our bee-keepers are improving their ways, though only to the extent of giving their bees more food than of old, and attending to the floor-boards and hives, and having them in better condition.

They are, however, still as prejudiced in favour of the straw skep as ever, though I believe if they could get the bar-frames at or about the price of skeps it might induce some of them to venture. A great number of the old hands retired from the bee-keeping in disgust a year ago, although we have as fine bee-pastures as any in the country, having all the spring and summer flowers, and the autumn heather. We only want an admixture of Ligurians to harden up the blacks to the pitch of working late and early; only I am afraid that if what the 'Renfrewshire Bee-keeper' says in last month's *Journal* be true they would be a danger to the passengers frequenting this station. It would never do if they took possession of the station. [No fear of that.—Ed.]

Who has them in Scotland to whom I could apply? I would even take hybrids, as I see they are even better than the pure Ligurians. [Our Leaflet on Ligurianizing will help you in hybridizing.—Ed.]

This has been a very bad spring for us here. The weather all through March and April was as cold as mid-winter, and I dare say I lost a large quantity of my bees through their getting chilled when out. They are all doing well, however. I did not begin to feed until well on in April, as my bees had a sufficiency of honey left from last year to give them a fair start. I acted on your suggestion and shaved off the heads of the sealed cells, and *told* the bees to help themselves, which they did with right good will. I don't think I will have a swarm before June, and they will have to be fed until that time, I am afraid, unless the weather takes a turn and so enables white clover to come up, and trees and flowers to bloom. I never saw things so backward. Our pear-trees, which used to have almost finished flowering by this time, have not even commenced yet, and the gooseberry and currant bushes are just struggling into flower. I have a patch of whin and broom within fifty yards of my bees, and I think the bees must have been getting a large quantity of honey from it, as my bar-frame hive, which in April had consumed two-thirds of its stores, was again pretty well filled up with pure liquid honey on 5th inst., and two others that I was feeding previous to that time has some sealed; one of them, when I commenced feeding, was 8 lbs. weight, and even so late as 20th April or thereby, had no appearance of honey anywhere in the skep, and you must understand that it was fed through only one hole in feeding-stage, so that the excess of honey could not be through extra feeding.

I may say here that my feeding apparatus is both primitive and cheap, only costing me about 1½*d*. It consists of a piece of tin 4 inches square, with a small hole in the centre, and on it a small glass tumbler, with the requisite syrup; it does its purpose first class, *i. e.* slow feeding, and constant.

My bar-frame hive of your pattern is in grand order, being full of bees, young brood, and honey. I have only had one failure, and I have myself to blame for it. One of your cheap hives did not build the combs straight along the bars. Last year I took out the combs, and pared off the honey, and put them in straight, and left the bees pretty much to their own meditations afterwards, with the exception of an occasional feed, and what they could gather in the autumn. They dwindled down to a handful; but I see there is some young brood sealed within the last few days, only I am afraid it is drone, and if so something must have gone wrong with the queen, and a fertile worker taken her place; if so, I will put a stop to her further career shortly.

Trusting that you may have every success in the work.—D. B. Brunton, *East Grange, 7th May*, 1877.

THE OCTAGON HIVE.

I have read Mr. Carr's and the 'Renfrewshire Beekeeper's' account of early storifying wooden boxes, and doubt whether Rusden or Gedde were the inventors of the first set of boxes.

In the second edition of *Apiarium, or a Discourse of the Government and Ordering of Bees, with their Nature and Properties*, written by J. Worlidge, gent., with copperplates, 1678, he says:—

'Therefore make a box or hive of about 8 inches in height in the inside, and about 12 inches broad, 4 square, close at the top, open at the bottom, with a square of French or Dutch glass on each side of 4 inches broad and 5 inches deep, so grooved that no air may pass through the sides of it. Then make another box or hive of the same depth, and about 6 or 8 inches broader. You may make a third box or hive of about 2 feet over, or more, but of the same depth as the former.

'The first of these boxes you may take a swarm into it at swarming time, and set it in its place where it is to stand. When you perceive it near full add the second box under it, placing the first on the middle of the undermost. The next day will part of the bees take to their new box, but the greater number will continue their former employment until they have quite filled the upper. Then they will fall to work in the lower, and it is probable they may fill that also. As you find occasion you may add the third, and so a fourth or fifth,' &c., &c., &c.

The above being extracts from the second edition of the work it is possible the first may have been printed earlier than 21st July, 1673; or Mr. Worlidge might have worked the storifying system years before he thought of publishing his experience.—Thos. H. Boutell, *Sleaford*.

WAX-MOTH.

It was very kind of you to send me an answer by post, and I can do no less than repay you the postage-stamp. I was afraid the enemy had got into the camp; but as the hive is very full of bees, it seems to me better to wait in hopes of a swarm, for I am rather backward in operating on bees, and would rather encounter what the swarm had left than the whole force of the hive. I cannot make out whether the larvæ come out of the hive or are expelled by

the rightful tenants. It seems to me most natural that they should spin a cocoon and then emerge as perfect moths. Does this transformation take place in the hive, or does the maggot come outside before it enters the chrysalis form? If so, providing the hive is not visited by the moth again, would not the bees eventually get rid of their enemies by their retreating of their own accord, for of course *they* cannot propagate their kind in their immature form? Might I suggest that a short history of the wax-moth might possibly have a special interest for many others than yours very much obliged—T. W., *Hitchin, May* 1, 1877.

[Wax-moth has been already the subject of articles in former pages of the *Bee Journal* (see Indexes to previous volumes), but if any fresh facts in their natural history come to light we will willingly find space for their insertion.—Ed.]

QUESTIONS TO BE SOLVED.

There are still many points in the natural history of bees which await solution; but, perhaps, if the readers of the *Journal* were to devote their attention during this season to one or two in particular, an advance might be made in our knowledge greater than would be the case if observation were less concentrated. With this view I venture to suggest for experiment and investigation the following inquiries:—

1. In hives in a normal condition, the nursing seems to be done exclusively by young bees, who do not begin the labour of collecting honey and pollen until they are from 17 to 19 days old.

The food of old and young bees seems to be different. Until nearly two weeks old, young bees refused honey when offered, although the old bees in the same hive devoured it greedily; moreover, the fæces in the intestines of the young bees were viscid and yellow, while those of the old bees were thin and limpid.—(*See* Dr. Dönhoff's *Observations*, quoted by Langstroth, p. 195.)

Bees that have been long queenless often refuse to feed an alien queen introduced in a honeyless cage; but when provided with a queen, by means of a sealed queen-cell, or otherwise, these same old bees must undertake the duties of nursing until young bees are hatched, unless (as in the case of wasps) the queen herself nurses the first batch of larvæ, which seems very unlikely. Hence, it would seem that old bees have the power of nursing in an emergency. Query, Is this so? and if so, do they, under such conditions, return to the food of young bees?

2. Bees that have been long queenless seem to lose the power of raising a queen. Is this the case? and if so, at what age does the incapacity commence, and does it proceed from inability to provide royal jelly, or from what cause?—H. Jenner Fust, Jun., *Hill, Falfield, Gloucestershire.*

CRYSTALLIZATION.

Mr. Wm. R. Griffin, on page 205, writes: 'If crystallization takes place in the feeders, what is to hinder it doing so in the cells?' The answer is, because the bees have previously swallowed the syrup, how many times I don't know. The secretion of their honey-bags is highly acid (I take the pap supplied to the worker grubs to be sufficient evidence of this); this converts a portion of the crystallizable cane-sugar into uncrystallizable sugar; this prevents that part of the cane-sugar which remains unchanged from crystallizing. Dr. Wallace, of Glasgow, has shown that one part of uncrystallizable sugar prevents nearly the same quantity of cane-sugar from crystallizing. I think Mr. Griffin will find that lump sugar yields a syrup of greater specific gravity than 'crystallized' sugar. If so, it is cheaper at the same price.—J. H. Eldridge.

ADULTERATED HONEY.

On page 162 a test is given to detect honey adulterated with flour. With all deference to our esteemed Editor, and thanks to him for his well-digested articles on bees and their produce, I beg here to dissent from his views of detecting honey mixed with flour. I know it is a popular belief that honey is often so mixed; but, although I have had several samples sent me said to be so treated, I have in every case failed to detect adulteration of any kind. So much for the opinion of some would-be judges. In the same article allusion is made that, if the honey be pure when mixed with water, the former will be dissolved and the water will remain clear. This is a mistake, because if a small portion of honey be mixed with water it immediately becomes opaque; if, on the other hand, the *honey* (?) *is sugar*, it will then remain clear. The above does not, however, apply to flour; but if flour be present, it is another question. I myself do not believe that honey is ever mixed with flour. My reason for saying so is because a very small modicum of flour at once destroys the flavour of the honey, and can be easily detected, by the taste, filtration, or by boiling a small quantity in a tube, when if present it immediately coagulates. If honey be mixed with flour, it is true it becomes milky-looking, but I am sure no person can admix flour with honey ever to be saleable. From what I know, and the experience I have had with honey, I must say the most likely place to find adulterated honey is with the Straw-hivists, *à la mode* of Pettigrew, and in such cases to prove its presence the honey must be separated from the sugar which it contains. This is done by a simple test which holds the sugar in solution, but precipitates the honey, and *sugar-honey*, when such is the case, is held wholly in solution, and remains almost clear. These and other tests were exhibited at Glasgow, and were awarded the gold medal of the Society, and were highly approved of by the judges.

There is also another opinion which I beg to differ from; that is, that sugar undergoes no change after having passed through the stomach of the bee. Sugar does undergo a change after having passed into the stomach of the bee. From the foregoing your readers will be apt to say, 'Why, his views are the same as Pettigrew's on this subject!' but pray do not form an opinion until you hear both sides of the question. Mr. Pettigrew has wisely condemned adulteration with sugar; he has also repeatedly told us that sugar undergoes no change after passing

into the bee ; but at the same time he tells us that honey at first is simply a sweet syrup, or saccharine matter, gathered from the flowers and transformed by the bees through some wonderful process of regurgitation. This imagination—it is nothing else—forces us to unpleasant conclusions. It is facts we want, not surmises, and until proof be given we have no alternative but to decline accepting such statements, which are absurd, because he tells us that honey-making is a process of transmutation, while sugar is a fixed or immutable substance ; but when he tries to support the former idea he makes a blunder in accepting the Yankee's opinion that sugar undergoes a change, that is, when it goes to support his own ideas, although on other occasions he says they are 'silly and foolish.'

All the assertions that have ever been made, that honey requires to be reswallowed ere it becomes honey proper, have failed, and without throwing the slightest light on the subject. My own experience is to the effect that both honey and sugar undergo a change when they have entered the bee, but it does not require to pass a second time to accomplish this. During the past summer a number of hives were ready for supering or swarming. I preferred the former. They were choke-full of brood pollen, and sealed honey, scarcely an open cell, except those newly vacated by the young bees, which were rapidly making their exit in sequence, and were in turn as quickly filled by the queen. I supered these hives about seven o'clock P.M., giving them wax-sheets; the bees took immediate possession, and in twenty-four hours thereafter the supers were well combed, and a large quantity of it completely sealed. The bees in this case had not the slightest chance of swallowing and reswallowing the honey, and yet it turned out, not crude, but perfect honey. Will Mr. Pettigrew not come forward and discuss this question in a proper spirit? He might get information.

The experiments I have made with honey, and these are not a few, go to substantiate all I have stated. I have opened and extracted the honey from the bag of the bee, and chemically it is the same as sealed honey, the result being in all cases (after being dissolved in pure water) the precipitation of the honey, whereas in the case of sugar it remained soluble ; unless in the case where it has been stored by the bees, a very small quantity of precipitated crystals is thrown down, and these are interesting, as they show the difference between the crystals of sugar and honey. This experiment takes some days to make a quantitative analysis, but there are many other experiments to detect the difference of sugar and honey. A very beautiful one, which is instantaneous, shows the result to be, in sugar, it changes from grey to a bright yellow, with a precipitate of the same colour, and which continues to absorb and then reproduce at intervals. If sugar, as taken by the bees, it becomes a slate colour, with a black precipitate when cleared; if honey, it assumes a grey colour, with very little precipitate, but what is is black. These last are delicate tests, and only to show the different results in the various single products; the former one gives the quantity of adulteration, and shows if the honey is genuine. —A Lanarkshire Bee-Keeper.

SEX OF EGGS.

I quite concur with our worthy Editor in thinking that the sex of an egg is ordinarily governed by the size of the cell in which it is deposited ; but my argument is that a queen is induced by instinct voluntarily to adapt the egg to the cell, and is not a mere machine compelled by mechanical necessity to deposit impregnated eggs in worker and drone eggs in drone cells.

I have not had ocular evidence that queens deposit eggs in royal cells, but believe some of your contributors can bear testimony to the fact. Artificial royal cells, if tenanted, always terminate at one side in an ordinary hexagonal cell, and though I have seen natural royal cells (*i. e.* cells founded when a fertile queen was present in the hive) which appeared to have been similarly constructed, still I have frequently found cells terminating in a perfect dome, with an egg fixed in the centre of the dome. In these instances the eggs must have been originally deposited by the queen in a royal cell, or have been transported by the workers ; and though Mr. Pettigrew affirms very positively that bees constantly move eggs from cell to cell, I have never seen anything to corroborate his assertion.—J. E. Briscoe, *Albrighton, Wolverhampton.*

SUBSTITUTES FOR POLLEN.

It is now more than seventeen years since the celebrated German apiarian, Dzierzon, published his interesting discovery of his bees visiting a neighbouring mill and carrying off to their hives rye-meal as a substitute for pollen, and on supplying it more conveniently found the average consumption to be about two pounds per hive till the blossoms furnished an abundant natural supply of farina.

During the spring of 1860 I remember instituting a series of experiments to test their partiality for the flour or meal of the following grains, which they greedily collected; and the carrying process, I accidentally discovered from a passing shower, was much accelerated by the flour being slightly damped : rye, barley, peas, beans, wheat, oats, Indian corn (yellow and white), linseed, and rice. Even placed side by side, they rather gave a preference for the first-named ; but were not over particular, as arrowroot, potato starch, and even ground oilcake disappeared.

I have since added enormously to my stock of crocus, which, together with a superabundance of natural farina from a gigantic old yew-tree, places my apiary independent of the artificial supply.—A Renfrewshire Bee-Keeper.

INDIAN BEE-KEEPING.

I take a great interest in the articles on Indian bees in your *Journal* now. I saw in a native dealer's shop in the midst of a small town a swarm of these bees in full work ; the combs were built on to some article of furniture,—I think the top of a chair. They interfered with no one, and were left in peace, to bring good luck. Another stock, for two years had a

flourishing time between the mats of which my house was built. Another built a good lot of comb on the extreme end of a bough of an accacia near my house. I have seen them on bushes in the jungle, and often bought the combs with honey of a most delicious flavour. I was never stung, nor saw anyone stung by these bees, but heard they can sting sharply.

I cannot understand how these combs, almost entirely unsheltered by foliage, and often quite so, can stand the intense heat of an Indian sun. And also I was often puzzled to know how bees, accustomed to such heat, can stand the dense fogs of the cold weather, and the thermometer at 48 degrees (Fah.) of heat only.

Perhaps this letter might interest your correspondent, Mr. Radcliffe; I almost think I knew him in days gone by in S. Wilts, and was once in a carriage with his father when some bees got out of their wrapping, supposed to be safely packed under our feet, and became very nimble about our legs.—J. R. W., *Leominster*, *May* 14, 1877.

HONEY PRODUCT OF SOUTHERN CALIFORNIA.

N. Levering contributes the following to the Los Angeles *Herald*:—

'The honey-producing plants are various, the most prominent of which we will name in the order in which they stand as to the grade of honey which they produce. They begin with white sage and extend through the black sage, wild alfalfa, sumach, wild buckwheat and alfilera. At the close of the working season of this year we made a tour of inspection among the apiaries of Los Angeles county, for the purpose of gathering statistics relative to the honey interests of the county, with the following result, which we regard as substantially correct:—Number of apiaries, 200; colonies of bees, 12,000; honey produced, 615,670 pounds. The principal amount of honey produced was extracted. The average yield per colony was a little over fifty-one pounds. This may be regarded as very good, when we take into consideration the fact that nearly three-fourths of the bee-keepers worked for an increase of bees, not for honey. Where increase of bees and honey together was the desired object, the results were equally astonishing.

'We will here give the results of a few of the leading apiaries in the county:—Messrs. Loop, Harmon, and May, of San Fernando Valley, began business last spring with 135 colonies in moveable frame-hives, which they increased to 350 and took 60,000 pounds extracted honey. E. E. Shattuck in the spring of 1875 commenced with 46 colonies, and up to this time has increased 1400, and taken over 50,000 pounds of honey. J. W. Hazen began business last spring with thirteen colonies; increased to 600, and took 16,000 pounds of honey, and that mostly box honey. A. J. Davidson, an extensive bee-keeper, in one of his apiaries of 120 colonies, which he did not increase, took 40,000 pounds of extracted honey. Mr. Parker from 13 colonies took 700 pounds of extracted honey. In our own apiary we Italianised eight colonies of black bees, and increased them to forty good colonies, and took 1200 pounds of extracted honey.—*San Francisco Bulletin.*

BEE-KEEPING: ITS BIBLIOGRAPHY.

We have much pleasure in giving in the present issue a first instalment of the 'collection of bee-books' adverted to in the May number, and which, we have reason to believe, will to a large portion of our readers have a peculiar interest. Bee-keepers will be pleased to know that their favourite study has a bibliography of its own, and one on which they may look with no small degree of complacency. They will be able to see how many minds in all ages and in all countries have been engaged in the study of the mysteries and operations of apiculture, and from how many different aspects it may be viewed. Cicero remarks that those that know not what has been written on a subject always remain in a state of childhood. The titles of books afford an index to their contents; and we trust that the present catalogue may prove of some service to the students of our science.

The bulk of the 'bee-books' we now give is due to the indefatigable labours of the late W. B. Tegetmeier, Esq., and Mr. Neighbour may reckon the possession of so rare and valuable a collection as one of the *jucunda* of his life; and we beg to tender him our sincere thanks for having placed the same at our disposal for publication. We have incorporated with the above the list of bee-books to be found in the Rev. W. C. Cotton's *My Bee-book*, which, besides including all those in his own possession, comprehended those in the libraries of many of his apiarian friends. This list was also brought nearer to completion by the aid of Watts's *Bibliotheca* and the works contained in the British Museum.

We are fully aware that the list is still far from complete, and we should feel grateful to any of our readers who would send us the titles of any work supplementary to the present collection, and of which we should avail ourselves on some future occasion.

Abbott, C. N. Leaflets for the Million: Transferring; Feeding; Ligurianizing; Driving; Hiving in Bar-frame Hives; Making Artificial Swarms. 8vo. Southall, 1876.

——— The British Bee Journal, and Bee-keeper's Adviser. Vols. I. to IV. 8vo. Southall, 1872–76.

Abeilles, Histoire Naturelle des. 2 tomes. 12mo. Paris, 1744.

Albrecht, J. F. E. A Treatise of Bees; entitled Zootomische und Physikalische Entdeckungen von der innern Einrichtung der Bienen, besonders der Art ihrer Begattung. 8vo. Gotha, 1775.

Allen, B. On the Gall Bee. Phil. Trans. Abridg. ii. 769.

Apiarian Notes. By a Country Clergyman. 8vo. Bath.

Apis Anglica, sive P. V. M. Georgicon A. R. R. Brixerthense. 8vo. Oxford, 1682.

Apes. De Proprietatibus Apum. [The earliest book printed on the subject.]

Bagster (S.) The Management of Bees. With a description of the Ladies' Safety Hive. 8vo. London, 1834. —2nd edition, 1838.

Bazin, N. Histoire naturelle des Abeilles. 12mo. Paris, 1784.

Bazin, N. Gouvernement admirable, ou la République des Abeilles. 8vo. Haye, 1746.
——— Abrégé de l'Histoire des Insectes, pour servir de suite à l'Histoire naturelle des Abeilles. 12mo. Paris, 1747.
Beaunier, S. Sur l'Education des Abeilles. 8vo. Vendome, 1806.
Bee, the. 2 tracts. Christian Knowledge Society, 1846.
Bee-keeper's Companion, the. London, 1848.
Bee-keeper's Receipt-Book, the. Harleston, 1876.
Bee Society, Hints for Promoting a. 8vo. London, 1796.
Bees, a Letter on; showing how to take the honey from them and yet to preserve them. 12mo. Whitchurch, 1839.
Bees, Hives, and Honey. (Handy Helps.) London, n. d. —2nd Edit. 8vo. 1865
Bees. A Poem. By Thos. Miller. London, n. d.
Bees. The Naturalists' Library. Entomology, Vol. VI. 8vo. Edinburgh, 1840.
Bees, the Natural History of. Translated from the French of Sieur Bazin. 8vo. London, 1741.
Bee, a numerous Genus of Insects, which have attracted an uncommon share of Attention in all Countries, and in every age, on account of their Industry, Art, and Utility, 1539.
Bee Friends, Almanack for. 12mo. 1792.
Bee Master and Bee Friend, Drops of Gold for. Nutt's System. 8vo. Ulm, 1839.
Beeswing's Advice to Bee-keepers. Hereford, 1876.
Bertin, M. Instruction sur la Culture des Abeilles. 8vo. 1836.
Bevan, Edward. The Honey-bee. 8vo. London, 1827. —1838. Edited by W. A. Munn, London, 1870.
Beville, P. C. G. Traité de l'Education des Abeilles. 8vo. Paris, 1804.
Bienaymé, M. Mémoire sur les Abeilles. 12mo. Mets, 1803.
Blangy, De. Traité de l'Education économique des Abeilles. 12mo. Paris, 1802.
Bonner, James. The Bee-master's Companion and Assistant. 8vo. Berwick, 1789.
——— A New Plan for speedily increasing the number of Bee-hives, &c. 8vo. Edinburgh, 1795.
Boswell, Peter. Bees, Pigeons, &c. Glasgow, 1840.
Bromwich, B. J. The experienced Bee-keeper. London, 1783.
Brough, R. C. Industry: a Poem on Bees. London, 1858.
Brougham, Lord. Architecture of Cells of Bees. London, 1860.
Busch, F. B. Hand-book on Bees. Arnstadt, 1830.
Butler, Charles. The Feminine Monarchie. 12mo. Oxon. 1609.—4to. London, 1623.—4to. Oxford, Phonetic edition, 1634.
——— Monarchia Fœminina, sive Apum Hist. a Carolo Butlero, interp. R. Richardson. 8vo. London, 1673.
——— Monarchia Fœminina. 8vo. Oxon. 1682.
——— The Feminine Monarchy; or, the History of Bees. Translated by W. S. 1704.
Chambon, A. Manuel de l'Education des Abeilles. 8vo. Paris, Thermidor, an VI.
Cheshire, Frank. Practical Bee-keeping. 12mo. London, 1876.
Christ, J. L. von. The Bee Catechism for Country Folk. 12mo. Leipsic, 1820.
Christ, A. von. The Practical Adviser in Bee-keeping. 12mo. Quedlinburg and Leipsic, 1839.
Chylinski. Dobrogost. The Bee-keeper's Manual. 12mo. London, 1845.
Clerici. Anatomia dell' Ape. Thirty Chromo-lithographic Plates. Milan, 1876.
Clutius, Theo., or Direk Cluyt. Upon Bees. 12mo. Leyd. 1597.
Collyns, Mr. Advice about Bees and Cottage Gardening. Exeter, 1841.
Comfort to Aristæus; or a few useful Hints on the Management of Bees. 12mo. London, 1800.
Copons, T. Marquis von. Short Guide to Profitable Bee Keeping. 12mo. Dresden, 1798.
Cordier, Edmund. L'Abeille Française. 8vo. Paris, 1799.
Cottage Bee-Hive, The. 8vo. n. d.
Cotte, C. Extrait des Mémoires sur l'Education des Abeilles. Paris, an 11.
Cotton, C. The Planter's Manual. 12mo. London, 1675.
Cotton, Rev. W. C. A Short and Simple Letter to Cottagers from a Conservative Bee-keeper. 12mo. Oxford, 1838.
——— My Bee-Book. 8vo. London, 1842.
——— Short and Simple Letters to Cottagers on Bees, extracted from My Bee-Book. London, 1843.
——— Manual for New Zealand Bee-keepers. Wellington, 1848.
Cramer, J. G. The wise and careful Bee Friend. 12mo. Leipsic, 1803.
Cumming, Dr. J. Bee-keeping. By the *Times* Bee-Master. London, 1864.—1871.
——— The *Times* Bee-master, Correspondence respecting. Collected by W. B. Tegetmeier. 8vo.
Danyell, Captain. The Italian System [Giotto's] of Bee-keeping. 12mo. London, 1876.
Day, John. The Parliament of Bees; with their proper Characters. 4to. London, 1641.
De Blangy, D. Traité de l'Education des Abeilles. 2 tomes, 12mo. Paris, 1771.
Debraw, John. Discoveries on the Sex of Bees, explaining the Manner in which their Species is propagated, with an Account of the Utilities that may be derived from these Discoveries, by their application to practice. 4to. Phil. Trans. London, 1777.
Dedekind, L. C. Profitable Bee-keeping for Countrymen. 12mo. Göttingen, 1812.
De Gélieu, J. Le Conservateur des Abeilles. 8vo. 1837.
——— The Bee Preserver. 8vo. Edinburgh, 1829—1876.
De Grave, P. F. New Instructions in Bee-keeping. 8vo. Ghent, 1816.
De la Lauze, C. F. A. Traités sur l'Education des Abeilles et des Vers à Soie. 8vo. Paris, 1809.
Della Rocca, M. l'Abbé. Traité complet sur les Abeilles. 3 tomes. 8vo. Paris, 1790.
Denys de Montfort, P. Ruche à trois Récoltes Annuelles. 8vo. Paris, 1813.
Dercum, L. A. Discursus de Apibus. Melle, et Cerâ, præfixus Dissertationi sistenti anatomiæ cereæ præstantiam. 4to. Wirc. 1743.
Desborough, J. G. Duration of Life in the Honey-bee. London, 1853.
——— Lecture on Bee-keeping. Hanwell, 1876.
Dobbs, Arthur. Letter concerning Bees, and their method of gathering Wax and Honey. Phil. Trans. 1750.
Dring, T. Treatise on Husbandry. Fol. London, 1681.
Dublin Society. Instructions for Managing Bees. 8vo. Dublin, 1733.
Dubost, J. F. Méthode Avantageuse de gouverner les Abeilles. 8vo. Bourg. 1800.
Ducouédic, P. La Ruche Pyramidale. 8vo. Paris, 1813.
Dudley, Paul. On the Method of discovering where the Bees hive in the Woods, and of obtaining their Honey, in New England. Phil. Trans.
Eclectic Hive, the (Jones). 8vo. Hereford, 1843.
Ehrenfels, J. M. von. Bee-keeping. 8vo. Prag. 1829.
Engel. Instruction sur la Culture des Abeilles. 8vo. Strasbourg, 1808.
Evans, John, M.D. The Bees. A Poem. 4to. Book I. Shrewsbury, 1806.—Book II. 1808.—Book III. 1813.
Feburier (M.) Traité complet théorique et pratique sur les Abeilles. 8vo. Paris, 1810.
Filleul, Rev. Mr. The English Bee-keeper. 8vo. London, 1851.
Fontenay. Manuel des Propriétaires d'Abeilles. 24mo. Bar-sur-Aube, 1829.
Franconian Apiarian Society and Bee Calendar, Transactions of. 12mo. Nuremberg, 1770–74.

Frederick, J. P. Practical Bee-keeping, in alphabetical order. 24mo. Berlin, 1800.
Gedde, John. A new Discovery of an excellent Method of Bee-houses and Colonies. London, 1675—12mo. 1676.
——— The English Apiary; or, the Compleat Bee-master, unfolding the whole Art and Mystery of Bees and New Discovery. 12mo. London, 1721.
Girdwoyn, M. Anatomie et Physiologie de l'Abeille. Twelve Lithographic Plates. With Description. Paris, 1876.
Golding, Robert. The Shilling Bee Book. 12mo. London, 1848.
Googe. Whole Art and Trade of Husbandry. 4to. London, 1614.
Gouvernement Admirable, le, ou la Republique des Abeilles. 12mo. La Haye, 1740.
Gundelach, T. W. Naturgeschichte der Honigbienen. Cassel, 1842—Nachtrag, 1852.
Hartlib, S. Reformed Commonwealth of Bees. 4to. London, 1655.
Hill, Hyll, or Hylle, Thos. Profitable Instructions for the perfect ordering of Bees. 8vo. London, 1579.
——— Londoner. A pleasaunt Instruction of the parfit Ordering of Bees, with the merveleus Nature, Propertie, and Government of them; and miraculeus uses both of their Hony and Waxe (serving diversly) as well in inwarde as outwarde causes: gathered out of the best writers. 8vo. London, 1568.
——— Londoner. The profitable Art of Gardening, &c.; with The maruelleus Gouernement, Propertie, and Benefite of the Bees, with the rare Secretes of the Honie and Waxe. 4to. London, 1579—12mo. 1568—4to. 1586.
Hints for Promoting a Bee Society. 8vo. London, 1796.
Histoire Naturelle des Abeilles. 2 toms. 12mo. Paris, 1744.
Hive-bee, the. In History of Insects, Vol. I. Murray's Family Library, No. 7. 8vo. 1829.
Hive, the, and its Wonders. 12mo. London.
Hoffman, G. F. The newest Experience in Bee-keeping. 12mo. Quedlinburg and Leipsic, 1837.
Honey-bee, the Hand-book of the. With Hints on Hives. 12mo. London, 1845—1850.
Honey-bee, the. 1841.
Honey-bee, the. Reprinted from the *Quarterly Review*. London, 1852.
Honey-bee, the. Chambers' Information for the People. Edinburgh.
Honey, the virtues of, in preventing Disorders, &c. 8vo. London, 1761.
Howison, Dr. J., on the Management of Bees. 8vo. Edinburgh, 1815.
Hüber, F. Natural History of Bees. 12mo. Edinburgh, 1808.
——— Natural History of Ants. 12mo. London, 1820.
——— New Observations on Bees. 12mo. Edinburgh, 1821.
——— Nouvelles Observations sur les Abeilles. 12mo. Paris, 1796.
——— Nouvelles Observations sur les Abeilles. 2 tom. 8vo. Paris, 1814.
——— Observations on the Natural History of Bees. 8vo. Cupar, 1840.
Hüber, P. On Humble Bees. Trans. Linn. Soc. vi. 214.
Huish, Robert. A Treatise on the Nature, Economy, and Practical Management of Bees. 8vo. London, 1815.—1817.
——— Bees; their Natural History and General Management. 8vo. London, 1844.
——— The Cottager's Manual for the Management of his Bees, for every month in the Year. London, 1820—1822.—1828.
——— Instructions for using the Huish Hive. London, 1822.
Hunter, John, F.R.S. Observations on Bees. 4to. 1792.
Hunter, John. A Manual of Bee-keeping. London, 1875.
Isaac, J. The General Apiarian, wherein a simple, humane, and advantageous method of obtaining the Produce of Bees, without destroying them, is pointed out in a series of letters to a friend. 12mo. Exeter, 1799—1803.
Janscha, A. Treatment of Swarms. 12mo. Vienna, 1774.
Jardine, Sir W. Naturalist's Library. 12mo. Edinburgh, 1840.
J. M. Account of a strange sort of Bee in the West Indies. Phil. Trans. Abridg. ii. 775.
Kästner, A. G. Collection of Plans for Bee-keeping. 12mo. Gotha and Göttingen, 1766.
Keys, John. The Practical Bee-master. 8vo. London, 1780.
——— The Antient Bee-master's Farewell. 8vo. London, 1796.
——— A Treatise on the Breeding and Management of Bees to the greatest advantage. 8vo. London, 1814.
Kirby, William. Monographia Apum Angliæ. 2 vols. in 1. 8vo. Ipswich, 1802.
Knight, T. A. On the Economy of Bees. 1807.
Langstroth on the Honey-bee. New York, 1862.
Lardner, Dionysius. The Bee and White Ants. 8vo. London, 1856.
Lawson, William. A new Orchard and Garden, as also the Husbandry of Bees. 1683.
Layens, Georges de. Elevage des Abeilles. 18mo. Paris, 1875.
Levett, John. The Ordering of Bees; or the true History of Managing them. 4to. London, 1634.
Leitch, William. Bees and the Art of Queen-making. 1861.
Limburg, C. F. The Origin and Nature of Robber Bees. 12mo. Langensalza, 1776.
Lister, Martyn. Account of Bees breeding in Cases made with Leaves. Phil. Trans. Abridg. ii. 772.
Lloyd, C. A. A. Lecture on the Honey-bee, delivered before the Natural History Society for Shropshire and North Wales. 12mo. Shrewsbury, 1843.
Lombard, M. Manuel des Propriétaires d'Abeilles. 8vo. Paris, 1825.
——— Sur les Abeilles. 8vo. Paris, 1805.
Mackenzie, Dr. The Management of Bees. Edinburgh, 1860.
Maclaurin, Colin. Of the Basis of the Cells where the Bees deposit their Honey. Phil. Trans. Abridg. ix. 2, 1743.
Markham, G. The English Husbandman. 4to. London, 1613.
Martin, A. Manuel du Propriétaire d'Abeilles. 12mo. Paris, 1828.
——— J. & A. Traité sur les Abeilles. 8vo. Paris, 1826.
Martin's, Mrs., Bee Hive. Tract for Cottagers. Oxford and London.
Matuschka. Contributions to the Knowledge of Bees. 2 vols. 12mo. Züllichau, 1804.
Maxwell, Robert. The Practical Bee Master. 12mo. Edinburgh, 1747—1750.
Mills, John. An Essay on the Management of Bees. 8vo. London, 1766.
Milton, John. London Apiarian Guide. 1823.
——— The Practical Bee-keeper. 8vo. 1843–1851.
Miner, T. B. The American Bee-keeper's Manual. 8vo. London, 1849.
Monarchy of the Bees, the. A Poem. London, 1821.
More, Sir J. England's Interest. Chap. VI. of the Husbandry of Bees. London, 1703.
Murphy, Arthur. The Bees. A Poem. 8vo. London, 1799.
Munn, W. Augustus. A Description of the Bar-and-Frame Hive. 8vo. London, 1851.
Nagel, H. Complete Review of the Monthly Directions for Bee-keeping. 12mo. Munich, 1823.

Natural History of Bees. Translated from French. 8vo. London, 1744.
Neighbour, A. The Apiary. London, 1865.
Newport, George. On the Temperature of Insects (Bees). 4to. London, 1837.
Nutt, Thomas. Humanity to Bees. 8vo. London, 1832—1835—1837.
Pagden, J. W. £70 a-year by my Bees. Alfriston, n. d.
Palteau, M. Construction de Ruche de Bois. 12mo. Metz, 1756.
Payne, J. H. The Cottager's Guide. 1832.
——— The Apiarian's Guide. 12mo. London, 1833.—1838.
——— The Bee-keeper's Guide. 8vo. London, 1842.—1846.
——— Bee-keeping for the Many. (Manuals for the Many, No. 3). 12mo. London, n. d.
Pettigrew, A. Handy Book on Bees. London, 1875.
Pettitt, W. J. Management of Bees. 8vo.
Pile, Matthew. The Bee Cultivator's Assistant. 12mo. Gateshead, 1838.
Pingeron. Les Abeilles. (Poem.) 12mo. Amst. 1770.
Polhill, Nathaniel. On Mr. Debraw's Improvements in the Culture of Bees. Phil. Trans. lxxiii. 107, 1778.
Purchas, Samuel. A Theatre of Politicall Flying Insects. 4to. London, 1657.
——— Spiritual Honey from Natural Hives. London, n. d.
Quinby, M. Mysteries of Bee-keeping Explained. New York, 1853.—1859.
Quiqueran, Beaujeu, M. T. Veuve Barras. Mémoire sur l'Education des Abeilles. 8vo. Paris, an 8.
Radouan, J. Manuel des Propriétaires d'Abeilles. 12mo. Paris, 1828.
Reaumur. Natural History of Bees. Trans. into German. 4to. Frankfort and Leipsic, 1759.
Reed, Rich. Some Communications about an early Swarm of Bees, &c. Phil. Trans. vi. 2138, 1671.
Remnant, Rich. The History of Bees. 4to. London, 1637.
Riem and Werner. Practical Bee Father. 12mo. Leipsic. n. d.
——— Hand-book of Bee-keeping. Trans. from Chambon. 12mo. Dresden, 1804.
Revolt of the Bees, the. 8vo. London, 1839.
Richardson, H. D. The Hive and Honey-bee, with an Account of the Diseases of Bees and their Remedies. 12mo. Dublin, 1847.—1849.
——— The Hive and Honey-bee, &c. 12mo. London, n. d.
Rucellai, Gio. Le Api. 4to. Padua, 1708.—Venice. 8vo. 1756.
Rusden, Moses. A further Discovery of Bees. 12mo. London, 1679.
Rusbridge, A. A Book for Bee-keepers. 12mo. 1875.
Samuelson, James. The Honey-bee. 8vo. London, 1860.
Schirach, A. G. Histoire Naturelle de la Reine des Abeilles. 8vo. La Haye, 1771.—Amsterdam, 1788.
Scudamore, Edwd. Artificial Swarms. Canterbury, 1846—12mo. London, 1848.
Serain, P. E. Instruction sur la Manière de gouverner les Abeilles. 8vo. Paris, 1802.
Smith, Richard. The Cottagers' Bee-book. 12mo. Oxford, 1839.
Sonder, David. Rural Economists assisted in the Management of Bees. Launceston, 1807.
Southerne, Edward. A Treatise concerning the right Use and Ordering of Bees, newlie made and set forth, according to the Author's own Experience; which by any heretofore hath not been done. 4to. London, 1693.
Spitzner, J. E. Perpetual Bee Calendar. 8vo. Leipsic, 1810.
——— Practical Guide to Bee-keeping in Straw Hives. 12mo. Leipsic, 1775.
Stiles, Sir F. H. F. A Specimen of the Labour of a kind of Bees, which lay up their Young in Cases of Leaves, which they bury in rotten Wood. Phil. Trans. Abridg. xi. 521.
Strutt, George. The Practical Apiarian; or a Treatise on the Improved Management of Bees. 12mo. Clare, 1825.
Sydserff, R. Treatise on Bees. 8vo. Salisbury, 1792.
Taylor, Henry. The Bee-keeper's Manual. 12mo. London, 1838.—1839.—1850.—1855.—1860.
Thorley, Rev. John. Melissologia, or the Female Monarchy, being an Inquiry into the Nature of Bees. London, 1744.—1765.—1772.—1774.
Turner, R. Plane Trigonometry; in which is shewn a curious Trigonometrical Method of discovering the Places where the Bee hives in large Woods. Folio. London, 1765.
Vauquelin. Analysis of the Propolis, or Mastic of Bees. Nicholson's Journal, v. 48.
Ward on Bees. 4to.
Warder, Joseph. The True Amazons; or the Monarchy of Bees. 8vo. London, 1712.
——— Delle Api, &c. (On the Bees: a little work translated from a tract by Joseph Warder, English Doctor, with a very pretty fable by the Archbishop of Cambray, Author of Telemachus.) Verona, 1747.
White, W. Sen. A Complete Guide to the Mystery and Management of Bees. 12mo. London, 1771.
——— A Complete Guide to the Mystery and Management of Bees: to which is added a Practical Monthly Bee Calendar by the late James Beezley of Banbury. 12mo. London, 1852.
White, Stephen. Collateral Bee-boxes. 8vo. London, 1756.—1759.—1764.
Wighton, John. The History and Management of Bees. 8vo. London, 1842.
Wildman, Daniel. A Complete Guide for the Management of Bees. 8vo. London, 1783.—1789.—1799.
Wildman, Thomas. A Treatise on the Management of Bees. 4to. London, 1768.—8vo. Ibid. 1770.
Willughbey, Fran. About the Hatching of a kind of Bee, lodged in old Willows. Phil. Trans. Abridg. ii. 774. 1670.
Wood, J. G. Bees: their Habits, Management, and Treatment. 8vo. London, 1853.—1855.
Worlidge, J. Vinetum Britannicum, etc. to which is added, a Discourse teaching the best way of improving Bees. 8vo. London, 1678.
——— Apiarium: or a Discourse of the Government and Ordering of Bees. 1691.

Echoes from the Hives.

EARLY DRONES.—16A *Cook's Road, Kennington, 5th April*, 1877.—'You may possibly remember (although, among your numerous correspondents, I don't think it likely) that I wrote you about two months ago, that I had found a queen in a stock which I had tried to Ligurianise in November, and which I supposed to be queenless, having dethroned the old queen and the Ligurian having been killed. You suggested that the queen had been bred after the attempt, and was unfertilised. This I find to be the case. There is sealed drone-brood in the worker-cells, and some must have been hatched. Now, can I utilise this stock in any way?—G. R.

FRUCTIFICATION BY BEES.—'I shall follow your singularly clear and able advice, for which many thanks. The bees that I have at present—nine stocks—came with me from Oxfordshire (near Banbury) in 1864. They were originally a very small and light brown sort; but they have long ago faded into the light of common day, and are just like their neighbours. It may, however, interest you to know that a field of three acres of grass immediately in front of them is at present (April 25) a mass of small clover. The clover is so abundant as to be remarked on by all who have seen the field. I attribute this result entirely to the fructification of the clover

by the bees of my garden for thirteen years, and am told that I shall have the best hay in the parish. Hitherto the meadows have been grazed. The bees' motto is that of Pitt—"*Non sibi sed patriæ.*"'—H. D. G.

THE QUILT, SPRING FEEDING, &c.—*Crofton.*—'All my hives with the quilt went safely through the winter, but I have lost three this spring for want of sufficient feeding. Last summer here was a very bad honey year. I had no honey in any of my supers, and most of my hives did not store enough to meet this late spring. This spring I tried your plan of giving them Symington's pea-flour, according to your plan, among shavings in a straw skep; but they took no notice of it. A week ago I was watching a strong hive, when, to my surprise, I saw the queen come out, fly a few turns round the hive, and then go in again. The bees, which were numerous on the foot-board, took no notice of her. There was no commotion in or about the hive, and there was no preparation for or of swarming. Is this usual, or what does it show or prognosticate? I have not yet seen any drones out of the hives. My strongest hive is a square straw hive with frames, which has required no feeding.'—R. B.

[NOTE.—It is not easy to assign a reason for the bees refusing the pea-flour; perhaps they could get natural pollen on such days as they could venture forth. Willows bearing yellow palm are so very attractive to bees in spring, that they cannot be induced to touch any substitute offered. We have planted about a hundred of the trees along our ditches, and recommend others to do likewise, at least to some extent. When queens are observed flying from hives, the condition of which is not well known, they should be immediately examined; and if the state of the combs, cells, &c., indicate that the old queen has died, and the young one has been hatched at a time when drones are not available, a fertile queen should be given, or the stock should be united to another. —ED.]

SPRING FEEDING.—*Sheffield.*—'We have had a very unusual prevalence of east winds, even for the season of the year just past. Nevertheless, my bees are very numerous, owing very much, I think, to the syrup and pea-flour with which they have been supplied. A pleasing incident has happened in my apiary. A red-breast has built her nest in the niche formed by a covering of thatch over a straw skep and super; and probably her young ones and my earliest swarms will wing their flight about the same time.'—J. J. H.

THE 'LITTLE WONDER.'—*Fonthill.*—'I must write at once, and say how delighted I am with your "Little Wonder" Extractor which I have just received. I am quite delighted with its efficiency, and many who saw it working were astonished to see the way in which it turned out the honey. Again thanking the inventor of such a machine as the "Little Wonder."'—A. G. R.

THE 'JOURNAL.'—*Bird's Row, Swanscombe, near Dartford.*—'I have sent you the Order for 10*s.* 6*d.* for the year's subscription for *Bee Journal*. Thanks for the kind instructions in it. I have two-and-twenty hives of bees. All look very healthy on a fine day; but the weather is very unfavourable for them now, for it is so cold.'—R. W. B.

A MODEL NOTE.—*Southampton.*—'I beg to enclose cheque for past and present vols., with best wishes for your prosperity.'—J. L. C.

Ellesmere.—'My bees are doing very well. All stocks came safely through the winter, and are now in excellent condition, with the exception of one that has an injured queen. They were all wintered under the quilt. Wishing you every success.'—J. L.

Market Harborough.—'I am happy to say I have been the means of completely converting one man to our views, and he has already transferred two skeps to frame-hives; and the queen I have asked for is for him. One evening last October he told me he was going to take up one of his hives and destroy the bees with sulphur; whereupon I said, "You might give me those bees." He said, "Oh, yes, if I could get them away;" which I very soon did, and put them into a hive with only about 2 lbs. of honey; and they have since had about 6 lbs. of syrup, and they are as strong as any hive I have, and I anticipate will be the first to swarm.'—H. B.

Inchmarlo, May 22.—'I have great pleasure in forwarding my subscription for the fifth volume of the *British Bee Journal*. It is, indeed, a valuable paper, and should be in the hands of every intelligent bee-keeper. The season here has been very unfavourable for our bees. We have had snow, more or less, almost every day during the months of March and April; and even now, in the middle of May, we have very cold nights, and the wind generally from the north-east; but thanks to the information given in the *Journal*, I have been able to bring through all my stock, eighteen in number, alive and healthy. Wishing you every success.'—R. M. G.

Wrington, May 25.—'I have had a rather unusual occurrence with my bees in one of Nutt's collateral boxes. A swarm was put in last summer, in June; on the 6th of May, this year, they had a swarm, although I had given room in a side-box; on 13th, a second swarm came out, and returned, but came out again on the 15th, which made swarm No. 2; on the 20th another, No. 3; and on the 21st another, No. 4. Can you account for this? they are all four swarms in good working order. I have had two swarms to-day.'—G. L.

[NOTE.—A multiplicity of swarms is a common occurrence, owing to a number of young queens having been raised, each of which led off with a body of retainers. Be very careful to feed them, and look sharply after the old stock, which must have been much weakened.—ED.]

Chester.—'I herewith enclose P. O. O. for 10*s.* 6*d.*, for which please continue to forward me *Bee Journal* for ensuing twelve months. I have enjoyed its perusal so much the last year that I have looked forward to its monthly appearing almost as much as any daily paper. My bees (five stocks) are all right, but not as forward as I would have wished, owing to the cold, inclement weather. I was hoping to have made some artificial swarms this month; but although drones have appeared, yet I consider the weather too cold for the purpose. If I am in town this summer I trust to have the pleasure of calling upon you and making your personal acquaintance; and wishing you and yours every success in your new residence.'—W. M. L.

Philipstown, Ireland.—I trust you are pleased with the move to Fairlawn, and that the bees like it, too. I also hope most sincerely that the whole undertaking, *Journal* and all, is proving remunerative; a fortune you will probably not make, but after all your services to the cause of apiculture I should be sorry to think you had sustained any loss. Perhaps I may trouble you with a longer letter soon, but have not time to write more to-day, and do not like to delay sending the subscription. Wishing you every success.—B. M. B.

Staines.—'I am glad to be able to inform you that I succeeded in safely hiving a very large swarm of Ligurian bees on Thursday last. I followed your directions, and was not in a hurry or flurry, and within an hour after I shook the swarm in every bee was comfortably established in its new home. I took advantage of the previous wet days and had the hive painted. Unfortunately for the bees the weather has been very unpropitious since they swarmed.'—J. H. A.

[Pray feed them.—ED. *B. B. J.*]

Killin, Perthshire.—'This is the most backward spring that the oldest inhabitant here remembers; there is not a blossom to be seen on anything, nor a full-blown leaf. The grass fields and hill pastures are brown and withered with the biting north-east wind and frosty nights that have prevailed since the middle of March. Sheep and cattle are dying for want of food, and of course bees cannot be well off.'—JOHN WOOD.

Greenock.—'Without exception, this is the most backward bee weather ever experienced. We have had nothing but easterly gales and high winds for the last three months; in fact, we have had six weeks' east winds in each month, with snow showers and hard frosts alternately. We had a heavy snow shower to-day: the tops of the hills on the opposite side are white, like in winter. Poor bees!'—J. W.

Blennerhassett.—'We have had a very cold spring here. The wind has been easterly, and very cold and dry; so we need not expect many swarms in May, as everything is very far back.'—J. H.

Marlow.—'Our friends are out in grand style this morning. We have a trouble to get one of the queens taken to and have had to recage her twice. The bees bit a piece out of her wing.'—G. R. W.

Essex.—'My stocks are very strong, owing to your advice as to keeping them fed with syrup until they can get their own living.'—G. L. W.

EARLY SWARMS.

Suffolk Street, Dublin.—'I had my first swarm on the 8th May, a very fine one—Ligurian—being the first in the district.'

Sittingbourne.—'I had a large prime swarm from one of my forward hives yesterday, May 9th, weighing 6 lbs. 12 ozs.—the heaviest I ever hived.'—F. T. S.

Maidstone.—'My first swarm came out on Saturday, May 12th, at 11.30, about ten minutes previous to a thunder-storm, and before they could be hived they (the bees) were completely drenched with rain.'—J. T.

Queries and Replies.

QUERY No. 210.—'Will you be good enough to inform me what is the relative worth of extracted and comb-honey, supposing we ignore the cost of supers? Or, to put the question in another form, if bees stored 20 lbs. of honey in a super and 20 lbs. in their stock-box, how much would they store in an extra large hive of one chamber?'—J. H. ELDRIDGE.

REPLY TO QUERY No. 210.—If the extra large hive already contained empty combs, the probability is that the bees would store more than double the quantity in it, since they would not only not consume any honey in the *making* of the comb, but would not waste any time in the operation. If they had to build new combs in the stock-hive, the storing would be about equal to that in the super. To answer in another way, by taking honey from ready-made combs by aid of the Extractor we should expect to get 60 lbs. as against 20 lbs. stored in a super.—ED.

QUERY No. 211.—I have three pretty strong stocks of bees. Will it be possible or judicious to transfer or drive them into bar-frame hives, as I wish to use frame hives only in the event of a swarm coming before the wood hives are ready, say three or four days? Would it do to compel them to enter the frame one within that time?—W. A. B.

REPLY TO QUERY No. 211.—Depriving the swarm of its first four days' work will greatly hinder its prosperity, but if you do not mind the sacrifice, and can give them some comb in the new hive, they may be compensated. It is a great pity that hives are not obtained in time.—ED.

QUERY No. 212.—How do you explain this? On May 14th I bought a skep (containing, I believe, a last year's swarm) out of the country, intending to give the bees to a weak stock in one of your '75 bar frame hives, and to place the empty skep on the top of another, trusting to the bees in the latter to utilize the brood and stores. It got a fall, however, and the combs were all detached, so that this scheme was defeated. When we came to examine the combs we found a great quantity of honey in good condition, but there were no signs of brood except eggs from one to three days old. The quantity of honey might lead to the idea that the queen had only just been able to find room to breed, but that was not the case, as there were a goodly number of bees and plenty of young ones among them. There had been breeding in the hive then; what could have caused its cessation during an interval so long that there was nothing in the hive of any age between a young bee and an egg? If the queen had deceased since the beginning of the year, could another have been reared and impregnated by May 14th? There were no drones in the hive. —SIC VOS NON VOBIS.

REPLY TO QUERY No. 212.—It is rather difficult to say what may or may not have been done in such an extraordinary early spring-time as occurred during February and a little later. The weather during that time was so exceedingly mild that breeding went on as in May, and veritable normal drones were common in March, so that should the queen of the hive, an old one perhaps, have been lost, it *was* possible for a young one to have become fertilized. It is our opinion that the queen now under notice is a young one raised under the conditions suggested, as there can be no other way of accounting for the cessation of breeding for so long a time as must have elapsed under the circumstances; but whether she became fertilized at such an early date remains to be proved, which can be satisfactorily done by noticing whether the larvæ develope into worker or drone grubs. The absence of drones in the hive is immaterial, as the young queen would not have mated with one of them if another could be found elsewhere, which might have been the case.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

ELLESMERE, *Salop.*—It is quite immaterial where the P. O. O.'s are made payable; neither is it necessary to warn us of the name or names of those to whom they are made payable, as they all pass through a banker's, and are 'cleared' in the usual way. The Index to Vol. IV. was sent in the number for April last.

MARLOW.—The disease may be dysentery, brought on by feeding on beer and sugar, which often ferments in the hive and causes the bees to become distended, and even to burst. Such bees would stagger about, unable to take wing, and, falling from the floor-board, would die. Occasional fine weather would have no beneficial effect when all are affected to such a degree. At the same time it is possible that the bees of the particular stock may have discovered some poisonous treasure, and are suffering from its effects.

G. H.—HIVES FOR DOUBLING.—Our cheap hives will do eminently for the purpose. Two of the Cottagers' Standards will cost 17*s.*, or two of the Woodbury's 15*s.*, or one of each, with a Makeshift of the same kind, will cost some shillings less. The higher-priced 'Standards' have outer cases and dead-air spaces all round; they cannot be used one upon another, but may be surmounted by the cheap 'Standards' with ease. Doubling is not continued during winter.

E. C.—It is desirable that the valuable papers now in course of publication in the *Woman's Gazette* on 'Bees and their Management,' from the pen of that eminent bee-master, T. W. Cowan, Esq., shall be given to the public in a more permanent form than in the pages of the class periodical in which they are at present appearing.

Covers for Binding the BRITISH BEE JOURNAL, *may be had, price* 1*s. at the Office, Fairlawn, Southall.*

FOREIGN BEE JOURNALS.

Arrangements have been made by which the undermentioned valuable Bee papers may be ordered through the office of the *British Bee Journal*, and the trouble of obtaining Foreign Post-Office Orders prevented.

THE BEE-KEEPERS' MAGAZINE and THE BEE-KEEPERS' TEXT-BOOK (America).

Published by KING & SLOCUM, Hudson Street, New York.

Prices—

The Bee-keepers' Magazine, per ann.	6/3
The Bee-keepers' Text-book, paper cover	1/8
,, ,, bound	3/2
The Magazine for one year, with paper covered Text-book	7/3
The Magazine, with bound Text-book	8/2

THE AMERICAN BEE JOURNAL.

Established in 1861 by the late SAMUEL WAGNER.

Is published monthly, at Chicago, Ill. at $2 a year. Its contributors are the best, most experienced, and successful Apiarists in America and Europe. It is the oldest, largest, best, and most reliable Bee paper in the English language.

Published by THOMAS G. NEWMAN, 196–198 South Clark Street, Chicago, Illinois. Price, including Postage, 8*s.* 4*d.*

All orders must be accompanied by Cheque or P.O. Order, payable to C. N. ABBOTT, Fairlawn, Southall.

GLEANINGS IN BEE-CULTURE, and OUR HOMES (America), by A. J. ROOT, recognised generally as one of the foremost of American Bee Pioneers, may now be obtained through the Office of the *British Bee Journal*, without the expense of sending Foreign P. O. Order.

Gleanings, Post free from America	5/0
Ditto, with Our Homes	5/4

Cash with Orders to C. N. ABBOTT, Fairlawn, Southall.

L'APICOLTORE.

GIORNALE DELL' ASSOCIAZIONE CENTRALE D'INCORAGGIAMENTO PER L'APICOLTURA IN ITALIA, SEDENTE IN MILANO.

Periodico fondato nel 1868 esclusivamente dedicato alla coltivazione delle api. Riccamente illustrato da accurate e numerose incisioni. Esce dal 1° al 5 d'ogni mese in fascicoli di 32 pagine con copertina. Abbonamento annuo anticipato Lire 6. Per l'Inghilterra Lire 7 franco di porto.

Dirigere vaglia postale al Cassiere dell' Associazione Centrale d'apicoltura, Conte Carlo Borromeo, Milano, Via Allessandro Manzoni, 41.

THE ANATOMY OF THE BEE. Thirty beautiful Chromo-lithographic Plates. Published under the auspices of the Italian Central Bee Association. The usefulness and artistic merits of this complete work have been acknowledged throughout the Continent, and Prizes were awarded to same by the Apicultural Congress held at Halle, and at the Vienna Exhibition.

Price for the work complete, One Guinea.

Address, J. CAMASCHELLA, 10 Derby Villas, Forest Hill, London, S.E.

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Fifteenth Edition. Price One Shilling.

SEVENTY POUNDS A YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to Mrs. J. W. PAGDEN, The Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 36.

JAMES LEE, of Bagshot,

Abridged Price List of Apiarian Supplies for 1877,

With recent Testimonials and Prizes.

From the Hon. Sec. Dorsetshire Bee-keepers' Association.

'I am very much pleased with the Hive you sent. It has been much admired by every one that has seen it, for its appearance and good workmanship.

'C. E. NORTON, Shaftesbury.'

From W. Broughton Carr, Esq. Higher Bebington, Cheshire.

'Certainly nothing can surpass your workmanship.'

All the double-cased hives are well painted, and require no further protection. All goods are securely packed and placed on the rail *free of charge.*

PRICE LIST.

	s.	*d.*
Cheshire Prize Hive, pair Supers...	37	6
,, ,, with Sections	35	0
Abbott's Prize Hive, unpainted	30	0
,, ,, painted, and with Supers ...	37	6
Lee's Alexandra Prize Cottagers' Hive, Roof and Sections complete	12	6
Lee's Prize double case ditto, with Supers ...	35	0
,, ,, Woodbury ditto	5	6
,, ,, Sectional Supers, the set of 16 ...	2	6
,, ,, Glass Bar-supers, the pair	5	6
Cheshire single case Hive	8	6
The Raynor Hive	15	0
,, Floor	3	0
The Cowan Hive	15	0
,, ,, double-cased and Supers ...	37	6
Prize Carr-Stewarton's Stock Boxes, 10/6 each, 6 for	60	0
Carr's, with treble glass back	19	0
Bar-frames in pieces, ready for glueing up, all double mortised, per doz.	1	6

Note.—Most of the above can be supplied in parts, halved in at the corners, ready for nailing together, at greatly reduced rates.

Further testimonials and references from those who have purchased in this way on application to J. L.

Cowan's Prize Extractor, 'The Rapid' 60 0
Very simple. A child can work it. Strong, and does its work thoroughly.

Unicomb, or Observatory Hives, from 10*s.* 6*d.* to 105 0

Cheshire Prize Syrup-can and Shovel, Smoker, Nucleus Hive, Feeder, Guide-comb Maker, Transferring Boards, &c.

Bee Veils, Gloves, Knives, Queen Cages, Straw Skeps, all sizes, Syrup and Barley Sugar for Winter feeding, and all other requisites.

Any of the above Hives can be finished with treble glass sides and shutter. Straw Frame Hives as true to shape as those of wood. A reduction for more than one. Special terms to large purchasers.

Hives for utility, strength, workmanship, and good material, unequalled.

THREE SILVER MEDALS and One Certificate at the Alexandra Palace, Special at Exeter, Ditto and First at Sherborne, Second at Grantham, Three First, One Second, and Two highly commended at Worcester.

Orders are being booked for the American Comb Foundation.

Agent for Worcestershire—
Mr. HARVEY WALL, Rashwood, Droitwich.

London Agents—
Messrs. GEORGE NEIGHBOUR & SONS,
Regent Street and High Holborn.

From S. WYATT, Esq., Westbrook, Tenbury, Worcester.

'The Hive I had from you in 1871, after being in constant use in the open air ever since, is now in as good condition as the day I bought it.'

From Mr. C. TITE, Wyndham Street, Yeovil.

'I am delighted with the Hive; it has been greatly admired for its solidity and finish.'

JAMES LEE, Manufacturer, Bagshot, Surrey.

fo. 39

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 51. Vol. V.] JULY, 1877. [Published Monthly.]

Editorial, Notices, &c.

JULY.

Although in the *Journal* for June, just passed, we were somewhat hard in our remarks on the fickleness of the weather during the month of May preceding, we ought, in fairness, to claim for it that in its last week it appeared to have repented of its evil ways, and became so cheerful and kindly that on the 25th swarming began in earnest. June was, during its first three weeks, fine and favourable; and while the fruit-blossoms lasted a great deal of honey was collected, which gave promise of large and well-filled supers; but, as has too often been experienced, with the decline of the fruit blossoms, there commences *an interval*, during which, except in favoured localities, very little honey can be found, and the bees, if left alone, are barely able to obtain the means of existence. This interval occurs between the fruit-blossoms and the white clover and lime blossoms, and is the cause of much vexation and loss to bee-keepers, unless provided against either by sowing seeds of honey-yielding plants, or by the gentle, continuous feeding of the stocks, to keep up their populations, in readiness for the harvest that is coming.*

White Bees on Alighting Boards.—The 'interval' has caused a repetition of the symptoms which were described in the May No. of *Journal*, and is the direct consequence of the scarcity of income incident thereon, occasioning much surprise to the amateur through its occurring, in many instances, when the hives are of considerable weight, and the supers in an advanced stage towards completion. The fact cannot be too often repeated, that when there is a cessation of income there will be a corresponding decline in the breeding and nursing, and a disposition on the part of the bees to prevent the increase of consumers by the casting out of immature brood.

Drones in the time of Scarcity.—If a hive in the condition above indicated be lifted from its floor-board, the poor drones, if they have not already been driven out, will be found huddled together in a heap upon the latter, when, if so disposed, the bee-keeper may crush them by hundreds. It, however, often happens that, with a wise foreknowledge of their imminent fate they depart voluntarily and make their home in a queenless stock, where, for well-known reasons, they are welcomed, even though they, by consuming the stores, place the stock in greater jeopardy than it would be without them.*

Mustard as a Honey Plant.—To provide against the honeyless interval before mentioned, we had intended to have raised mignonette, phacelia, and mustard in large patches, but through pressure of other business only the last was sown in any quantity, producing a strip of about eighty yards long, and somewhat over four yards wide, and we think as an attractive plant for bees at that particular time nothing can excel it. It has been a yellow mass of blossom for fully three weeks, and during the whole time has been the continuous daily resort of myriads of bees, whose cheerful hum told pleasantly of the business they had in hand amongst the golden flowers. It has reached a height of nearly eight feet in some places, and many of the *flower and seed* stalks are from fifteen to eighteen inches long. When done flowering, it forms excellent food for sheep and goats, or if allowed to ripen, its seed will yield a crop which will well repay the

* We are writing nine miles west of London.—Ed.

* A *remarkable* instance of this came under our notice of late. A stock that had swarmed at the beginning of June, and afterwards '*cast*,' had become queenless, and on the 22nd, when we examined it, it was literally full of drones, there being, perhaps, not five hundred workers left in the hive. Taking an empty skep of corresponding size, we set the full one upon it, and lifting them both, 'bumped' them on the ground until the whole of the inhabitants were thrown down into the lower compartment, when, on inspecting the combs, it was apparent that the hive was queenless, and almost broodless and honeyless. There were several thousands of drones, and the smallness of the number of workers would be puzzling if it were not remembered that through the former the heat of the hive was kept up to a delusive extent, and that the working population had worn themselves down in endeavouring to supply them with food. They were, of course, useless to their owner, and we recommended their destruction, and the saving of the combs for a later swarm.—Ed. *B. B. J.*

trouble and cost of growing it, and it has always a good market value. The mignonette and the phacelia failed in a great degree in consequence of the dryness of the weather, and there are only some dottings of them to be found. Nevertheless, they are sources of attraction, and in such times every little helps.

Honey Gluts.—In the happy hunting grounds where the honeyless interval described is comparatively unknown, but where throughout the summer successive flowering crops yield up their abundant secretions to the industrious bees on every day when the temperature of the atmosphere will permit them to seek it, stocks and supers will have attained to great weight; and lest the former should by repletion prevent the deposition of eggs by the queen, it would be well, when removing supers, or giving increased accommodation in that respect, to open the hives and extract all the available honey from the combs. Where not readily available, it should be unsealed, and additional supers put on.

Additional Supers.—Supers that are composed of separate sections afford facilities for giving increased storage space which are not possessed by those of fixed capacity, and it is of the latter, therefore, that we now write. When it is necessary to storify, it becomes a question whether it is better to place the additional super above or below that nearly completed, and although, following an old practice, we formerly adopted the latter principle, experience has taught us that the former is preferable, on the following grounds:—Firstly. When a super is nearly finished, the removal of it to the top of another that is empty will greatly hinder the desired completion of it, since the bees, before devoting further attention to it, will, if they continue their labour, build new combs in the new one. Secondly. A super close upon a hive may have brood in its lower parts, and in such case the new combs will become the repositories of brood also, which would not happen if the new combs were built above the old, since the queen would scarcely be tempted to form a second brood-nest above the sealed honeycomb at the top of the latter; the narrowness of the passages between almost precluding her. Thirdly. Because the introduction of a large empty super between a stock-hive and another nearly full may cause the bees to empty the unsealed cells of the latter, and thus spoil altogether the chance of its completion.

BEES AT SOUTH KENSINGTON.

Prior to the Grand Fruit and Flower Show held at the Royal Horticultural Society's Gardens, South Kensington, on the 19th ult., Dr. Hogg, one of the Editors of the *Journal of Horticulture*, sent out invitations to hive-makers to exhibit on that occasion to the numerous visitors a collection of hives and bee-furniture. Taking advantage of the opening presented we suggested that an exhibition of manipulation with live bees might prove an additional attraction; and having had an interview with Dr. Hogg, we made arrangements with Mr. Caven Fox, the resident secretary, for a small display in the French Garden, within the precinct under his control. This garden, which is in a dilapidated condition, is a square one enclosed by buildings, one corner of it communicating with the chief corridor by a set of open arches; and here we decided to make our first effort under the Royal Horticultural Society's auspices, taking the precaution to cover the openings of the archways with mosquito net, as a protection to visitors. We were sorry to find ourselves the only exhibitors of hives and bee appliances, a fact which must be regretted, since it points to the disagreeable conclusion that the promotion of bee-culture is not the sole purpose for which exhibits are sent to such places, and here no prizes were offered. As public instructors we, however, did our best, and considering the shortness of the time at our disposal for preparation have every reason to be satisfied with the result. The hives, particularly the 'Standard,' were objects of much interest; but the manipulation with the bees was the chief source of attraction in our department, and great wonderment was created by their docility, and at the ease with which they were forced, as it were, to do the bidding of their master.

Two observatory hives, one filled with English and the other with Ligurian bees, attracted much attention, the queens being much sought after, the difference in their colour and general appearance affording scope for observation and remark. Their Royal Highnesses the Prince and Princess of Wales and suite honoured the Gardens with their presence; but the French Garden, not being in presentable condition, was not visited by them, and our bees escaped the royal recognition for which bee culture generally is pining.

Nevertheless, our effort was patronised by many of the aristocracy, and the advantages of the bar-frame principle were so forcibly exemplified that many were induced to adopt it for future use in their apiaries. It was evidently the intention of the promoters of the hive exhibition on this occasion, that hives 'on view' should become a permanent feature in the corridors under the care of Mr. Fox, the able and energetic secretary, to whom we are deeply grateful for the kind and willing aid afforded; and we are not surprised, considering the coolness with which his invite was received by

hive-makers generally, to find that both bees and hives are ignored in the report of the show which has appeared in the *Journal of Horticulture*.

PROPOSED TESTIMONIAL TO MR. F. W. WILSON.

'Crystal Palace.—It has been decided, at a meeting held on the 26th ult., to present a testimonial to Mr. F. W. Wilson, who has just left the Palace, after twenty-five years' service.

'Mr. Wilson's genial manners, unfailing courtesy, and thoroughly zealous efforts to promote and carry out successfully the various interesting Natural History and other Shows at the Crystal Palace have earned for him the respect of a very wide circle of friends.

'Mr. C. E. Elliott, of the Ceramic Court, Crystal Palace, has consented to act as Honorary Treasurer and Secretary, and he will be happy to attend to all communications in connexion with the fund, or receive any subscriptions.'

Bee-keepers will remember that it was greatly owing to the kindness and courtesy of Mr. Wilson that the Bee and Honey Shows at the Crystal Palace were so successfully carried out. His energy and tact caused the arrangements to be as perfect as they were, and we hope his efforts will be remembered. The Committee for carrying out the proposed testimonial includes many whose names are familiar as 'household words,' and Mr. Elliott will with pleasure furnish the fullest particulars to all those willing to testify to the worth of a most valuable public servant.

BEES AND HONEY AT EDINBURGH.

The Caledonian Apiarian and Entomological Society—the first be it remembered that has been established in the north for promoting the improved culture of the honey-bee, in modern times—has through the indomitable perseverance of its officers affected a strategic movement, which, in its effects, will be as advantageous to the cause they have at heart as will 'the crossing of the Danube' be a welcome achievement to the power now striving for the same. The Association has, as is well known to readers of this *Journal*, held for the two past years its annual show of bees, hives, and honey, in the busy commercial city of Glasgow; but there amongst the tall chimneys, and the fire and smoke of its vast factories, there were found neither scope nor facilities for carrying out the war which they had voluntarily waged against ignorance of the best methods of bee-culture in Scotland; and hence they have turned their attention to a means by which their influence will be strongly felt over the whole of the country '*ayont the Tweed*.' By humble memorial, which has been favourably received, the 'Caledonians' approached the Highland Society of Scotland, praying to be allowed to hold exhibitions, and teach the arts of apiculture on a national basis, in conjunction with them, and under their auspices at their various shows in Scotland, and we are delighted to be enabled to state that the prayer of the memorialists was fully granted. Here, then, is an opening such as we Southerners longed and hoped for, but, be it whose fault it may, never attempted to achieve, and hence the prestige in British bee culture is claimed by our Scottish brethren, and we have little doubt but that they will maintain it. For the benefit of English readers it will be well to explain that the 'Highland Society' was established about a century ago for diffusing information on, and encouraging, the best and most improved methods of agriculture, and numbers amongst its members the *élite* of the Scottish aristocracy and landed proprietors, with H. R. Highness the Prince of Wales at their head. It is a society which holds the same national position in Scotland as the Royal Agricultural Society does in England—holding moveable shows, and making its circuit in about ten years. Since 1869 it has visited Dumfries, Perth, Kelso, Stirling, Inverness, Glasgow, and Aberdeen, and now its great show will be held at Edinburgh again during the present month. Over such an extended area it is almost unnecessary to point out the great impetus apiculture will receive in the North from this movement: the march of improvement being brought under the immediate notice of the landowners, tenant-farmers, their cottagers and dependants, who flock in thousands to these annual gatherings, all classifiable under the one category of country people, having the amplest facilities for bee-keeping.

From the favourable season of the year to see living bees fully at work, and the liberal accommodation granted by the Highland Society for their inspection and manipulation in the Meadows, as well as for a display in fullest extent of hives and other bee appliances, we trust to see all bee-keepers and Apiarian Societies combine to make the exhibition a truly international one, worthy of the occasion, and of that beautiful city, 'The Northern Metropolis,' which is of itself so much an attraction to the tourist.

We refer to our advertising columns for the schedule of prizes offered by the Society.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL ASSOCIATION.

Minutes of meeting held in M'Innes' Temperance Hotel, Hutcheson Street, Glasgow, June 13, 1877.

Present, Messrs. Sword, Wilkie, Butler, Lumsden, Baillie, Maxwell, Bennett, and others. Mr. Sword was called to the chair.

The minutes of the previous meeting were read and approved.

Mr. Wilkie reported, on behalf of the committee appointed at the previous meeting to communicate with F. N. Menzies, Esq., Secretary of the Highland Agricultural Society, by memorial or otherwise, asking permission to hold the Annual Show under their auspices; that a memorial had been drawn up and forwarded to Col. Campbell in London for signature; that he had returned it, signed, the following day, with a handsome donation to the funds of the Society, and wishing every success to the prayer of the memorial. That it was then forwarded to F. N. Menzies, Esq., who sent a reply that it would be laid before the first meeting of Directors,

and being an important matter he had no doubt they would give it their best support. The committee then deemed it desirable to print the same and circulate it among the directors. They have now to report the complete success of that memorial with the H. A. S., as at their meeting of the 6th June they accorded space of ground and liberty to the Caledonian Association to erect a separate tent for the Exhibition in Edinburgh during the four days of their meeting. The committee now ask you further to advise them what course to adopt, as this will be the best means of putting bee-keeping on a broad national basis, and they would suggest that all the other Bee Societies should be asked to give their co-operation, and join the Caledonian Association in Edinburgh, and give the hearty support to the honey-bee and its produce which they so richly deserve.

Mr. Butler begged to thank the committee for the very able way in which they had performed the work entrusted to them, and likewise proposed that a vote of thanks be minuted to F. N. Menzies, Esq., Secretary to the H. A. S.

Mr. Bennett said he had to add the names of the following gentlemen to the list of patrons, which would be in themselves a guarantee to the interest now being taken in bee-culture, viz., J. M'Phedran, Esq., Craigbet Bridge of Weir; David Tod, Esq., Eastwood; Alexander Harvey, Esq., of Kirn; John Grahame, Esq., Adelaide Place. He had further to propose that a second exhibition be held in Glasgow this year in September, in connexion with the Horticultural Society, so that the heather honey may get the place which it is entitled to. He had also to report that Mr. John Henderson had tendered his resignation as secretary, owing to want of time to conduct the correspondence. Mr. B. regretted this, as he knew the able manner in which Mr. Henderson had performed the duty. After some discussion, he agreed to act as interim secretary till one who is really interested in the Society can be appointed.

It was further agreed that Messrs. Wilkie and Bennett should go to Edinburgh and view the ground, and that Mr. Abbott should be asked to attend for manipulating purposes for the four days of the show. Also that Messrs. Neighbour, Lee, Allan, and others, be communicated with, to show as many improvements in hives and other bee-gear as possible. A sub-committee was then appointed to draw up the prize schedule and other arrangements, and a vote of thanks to Mr. Sword for presiding brought the enthusiastic meeting to a close.

BEE SHOW FOR GEDLING, NOTTINGHAMSHIRE.

It is suggested that a Bee and Honey Show might be organised in conjunction with the Gedling and Carlton Flower Show near Nottingham if a few friends to the cause residing in the district would combine for the purpose. Mr. W. C. Cheshire, of Gedling, will be very glad to act as Hon. Sec. *pro tem.*, and will give any information he may possess to intending exhibitors of hives, &c.

THE DORSETSHIRE BEE AND HONEY SHOWS.

How to Spend a Week's Holiday Pleasantly.

It will be seen by an advertisement in another part of our present issue that the two principal shows of bees, hives, honey, &c., which the Committee of the Dorsetshire Bee-keepers' Association have undertaken for the present season are to be held on Thursday, August 23rd, and on Wednesday, August 29th, the first at Dorchester and the second at Sherborne. These exhibitions will possess unusual interest for several reasons. In the first place, the bee-keepers of Dorset were amongst those who led the way with county shows and practical apiarian manipulations; and although they have not yet brought their organization up to the pitch of their co-workers north of the Tweed, they have done much for the advancement of our favourite pursuit. The genial honorary secretary, Mr. C. E. Norton, of Shaftesbury, and his coadjutors, have worked most zealously during the past twelve months, and their labours have been amply rewarded. Last year they had to be content with a very modest list of prizes, making a total of about 6*l.*; but so successful was their show that the Sherborne Horticultural Society (under whose auspices it was held) offered to give 10*l.* in prizes this year, and to provide tent, &c., on condition that they received the entrance-fees. This was agreed to, and another 10*l.* was added by the Association. When these arrangements had been made, the bee-keepers of the southern part of the county at once decided to have a show on their own account, and forthwith arranged for it to be held in connexion with the exhibition of the Dorset County Horticultural Society at Dorchester, the floral *fête* folks offering 5*l.* for prizes, but declining to have anything to do with the tent or arrangements, and leaving the profit or loss to the bee-keepers. A second programme, with prizes to the value of 20*l.*, was then issued, and an appeal to the British Bee-keepers' Association was most generously responded to by an offer of five medals for each show, two silver and three bronze. The prizes will, therefore, be worth contending for by those who live beyond the borders of the shire, as the medals will give the show a kind of national air, in consequence of the decision arrived at by the Central Association not to hold an exhibition at the Crystal Palace this year, but to award their prizes at local shows in various parts of England.

Those who live at a distance from Dorset, but have a week to spare in August, will find no lack of interest if they decide to visit the west. Dorchester is a fine old country town, the surroundings of which speak eloquently of comfort, contentment, and prosperity. It would take more space than we can spare to dwell upon its many interesting historical associations, ranging from the time when, under the name of Durnovaria, it was one of the strongest and most extensive Roman stations. But, as one writer pithily puts it, 'the neighbourhood abounds with Roman antiquities.' On the south side of the town there is the celebrated amphitheatre (made to accommodate about 12,000 persons), where the followers of the Cæsars watched the combats with wild beasts, and where, at the beginning of the last century, a scene even more revolting was witnessed: namely, the burning of a woman accused of having poisoned her husband. About two miles off, at Maiden Castle, are the remains of an extensive camp, one of the strongest positions ever held by our Roman conquerors. In short, for the antiquary, the archæologist, and the naturalist, every mile of the district offers attractions. Weymouth, 'the Naples of England,' with its splendid beach, its rows of terraces, its charming bay, its forts, and shipping, is but eight miles off. The Isle of Portland, where the botanist and geologist might revel by the month, is only a mile or two further on, with its grand breakwater, large convict establishment, immense quarries, and wonderful Chesil beach. Then, too, Portisham, associated in history with the name of Admiral Hardy, and its fine old cromlech, or Druids' temple; Abbotsbury, with its extensive swannery, decoy, and the remains of its abbey; Corfe Castle, a splendid and historical ruin, linked with the name of the treacherous queen Elfrida and the murder of her son-in-law, Edward the Martyr; and Lulworth Castle, cliffs, coves, tumuli, and Saxon chapel, with Bindon Abbey close at hand, are all within easy reach. Then we have Wimborne, with its grand old minster; beautiful Bournemouth; the ruins at Christchurch; the leafy loveliness of the New Forest; Salisbury, with its fine cathedral; sacred old Sarum; ancient Amesbury; solemn Stonehenge;

Wilton, with its church, park, and carpet factory; Shaftesbury, with its lovely views; the ruins of old Wardour Castle; Fonthill Abbey; Alfred's Tower at Stourhead, and hosts of other places well worth visiting, all within a few hours' ride by rail or road.

Here, then, are all the elements of a bee-keeper's holiday. With the hope of glorious August weather; a bee and honey show at Dorchester to begin the week with; rural rambles, rich with lively legend; long reaches of blue water, lapping leisurely the lovely shores; feasts of geological and botanical fat things; historical, archæological, and antiquarian lore to supply the mind for many a day; and another bee show at the end of the week, amid the noble ruins of the glorious old castle at Sherborne, redolent with stories of ancient Britons, gallant Raleigh, fighting bishops, and the poet Pope.

Further particulars will be found in another column, and any details as to 'what to see and how to see it' will be gladly given to any bee-keepers who will take the trouble to communicate with the honorary secretary.

WEST OF ENGLAND APIARIAN SOCIETY.

Allow me, through the medium of your columns, to call the attention of bee-keepers in the West of England to the new rules of the above Society. Branches started in various parts will now be able to participate in the advantages offered by the parent Society, such as a grant of medals, &c., to the local shows; also, books, pamphlets, and hives for cottagers, entry-forms, &c., which, of course, must be regulated by the financial *status* of the Society. The Society feels the want of a manipulating tent, which another year they hope to be in a position to purchase. The new Rules are VII., VIII., IX., X., and XI. May I also call the attention to the two Shows held under the auspices of this Society advertised in your columns?

I. That the Society shall be called the West of England Apiarian Society, and consist of a president, vice-president, acting and local committee, the whole of whom shall hold office for one year, and be eligible for re-election.

II. That the objects of the Society shall be the encouragement, improvement, and advancement of bee-culture in the West of England, and the advocacy of a more humane, rational, and profitable mode of treatment for that industrious insect, especially among cottagers, by the circulation of cheap and simple instructions on the subject, by means of lectures, and one or more annual bee and honey shows, in some town or towns in the West of England, as soon as the funds will permit.

III. That the management of the Society be placed in the hands of the Acting Committee, who shall meet in the month of January in each year, to elect the local committee and fix on the town in which to hold the annual bee and honey show or shows.

IV. That the local committees consist of gentlemen resident in or near the town fixed for the annual shows, and that their duties be, to carry out the plans of the Acting Committee with respect to such shows, &c.

V. Every subscriber of *5s.* annually shall be a member of the Society, and every subscriber of not less than *2s. 6d.* annually an associate member.

VI. An extraordinary general meeting may be called by the Acting Committee at any time, of which seven days' notice shall be given by the Secretary.

VII. Members and associates of the West of England Apiarian Society resident in, or otherwise connected with, any district, upon receiving the sanction of the Acting Committee, may constitute themselves into a local branch of the said Society, to be called the West of England Apiarian Society ——— Branch.

VIII. Each local branch shall be governed by a chairman and committee, to be chosen by the enrolled members and associates of the Society composing the branch.

IX. Each local branch shall have power to elect one member of the Acting Committee to represent their interests at the Council of the Society, due notice of such appointment to be forwarded to the Secretary of the Society.

X. The duties of each local branch shall be, as much as possible, to promote, in concert with the Acting Committee, the objects of the Society, as defined by Rules II. and IV.

XI. Local branches may frame their own Rules, provided they be consistent with the Rules and objects of the Society. A copy of such Rules and any subsequent alteration of the same shall be forwarded to the Secretary of the parent Society.

OBED POOLE, *Hon. Sec.*,
Uphill, Weston-super-Mare.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The annual meeting of this Association was held on the 9th of May, the President, the Ven. Archdeacon Trollope, in the chair, supported by the Rev. Canon Clements, Vicar of Grantham; the Rev. E. F. Quarrington, Rector of Stroxton; the Rev. W. Barker, Barrowby; the Rev. D. W. Pennell, of Grantham; W. H. Holloway, F.G.S., Grantham; Thos. Bushby, Esq., J.P., Grantham, and others, when the report and balance-sheet for the past year were submitted and adopted unanimously. It was also decided to hold the next Exhibition at Grantham on the 11th of September, and at the same time to have a Honey Fair in connexion with it. The Committee will also arrange for Bee Manipulation on a large scale. Messrs. C. N. Abbott, J. G. Desborough, R. Symington, and others, have kindly promised to give to the bee world the benefit of their great experience.

Grantham being nearly central, and a delightful neighbourhood for a visit, with every convenience in the way of railway communication, together with there being a liberal schedule of Prizes, will no doubt bring about a grand meeting, which the committee will do their uttermost to make a success. As the British Bee-keepers' Association has declined to hold an annual show, it is hoped a good share of support will be given to the Lincolnshire Association at their coming Show, and so prove to the public that although the British Bee Association is declining, the Lincolnshire is not.—*Communicated.*

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The above Association will hold its second Apiarian Exhibition either at the end of August or beginning of September; the necessary arrangements have not all yet been concluded, further particulars will be given in next month's *British Bee Journal.*—WM. N. GRIFFIN. *Hon. Sec.*

WOODFORD HORTICULTURAL SOCIETY.

The Woodford Horticultural Society will hold their Fifth Annual Show in the beautiful grounds of Knighton, Woodford (the seat of E. N. Burton, Esq.), on Wednesday, July 18, next, when the Lord Mayor and Lady Mayoress are expected to be present.

The Committee will be happy to give free space for the exhibition of hives, &c., and hope to see a large collection on view. The Hon. Sec., S. J. Taylor, of Woodford, Essex, will supply all necessary information.

BLAIRGOWRIE DISTRICT BEE-KEEPERS' SOCIETY.

This improving and promising Association was instituted December 1876, for the extension and improvement of bee-keeping on humane and profitable principles, under distinguished patronage. The Society will hold its first exhibition of bees, honey, hives, &c., in the Town Hall, Blairgowrie, on Friday and Saturday, 24th and 25th August, 1877, when a liberal schedule of prizes will be competed for. Particulars and forms may be had of Mr. James Rogerson, Hon. Sec., Perth Street, Blairgowrie.

ARRANGEMENT OF SHOWS.

The following are fixtures for Bee and Honey Shows for 1877 :—

July 11.—Ealing Horticultural Society.
,, 18.—Knighton, Woodford.
,, 24, 25, 26, 27.—Caledonian Association at Edinburgh.
Aug. 7.—Crawley and Ifield, Sussex.
,, 15, 16.—Salop, Shropshire.
,, 16.—West of England, Taunton.
,, 23.—Dorchester, Dorset.
,, 24, 25.—Arbroath.
,, 24, 25.—Blairgowrie.
,, 28. Odiham.
,, 29.—Sherborne, Dorset.
,, 30, 31, and Sept. 1.—East of Scotland, Dundee.
End of Aug.—Wolverhampton.
End of Aug. or beginning of Sept.—Devon and Exeter.
Sept. 11.—Grantham.

Secretaries, please forward early intimation of fixtures for coming Shows.

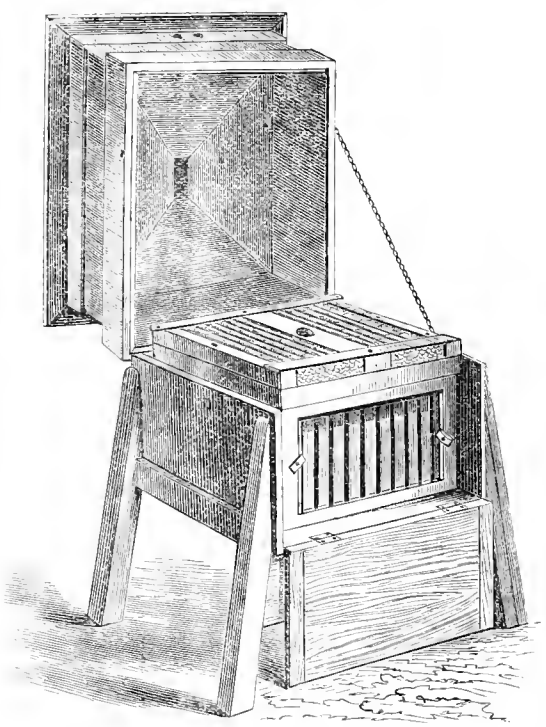
A NEW COVER FOR FRAME-HIVES.

The annexed woodcut exhibits a new cover of simple and inexpensive construction, and is introduced to bee-keepers by George Neighbour & Sons, of High Holborn and Regent Street. In it any frame-hive not larger back to front than 20 inches, or more than 17 inches in width, can be placed, thus making a bee-house for one hive on its own stand and protected from the weather by the roof above. To have the stock-hive separate from the stand and cover is often a convenience when manipulating with bees and when sending swarms or stocks from one place to another, the advantage is at once apparent also for cleansing floor-board or for any purpose where portability of the hive is an object, whilst the opportunity of giving ample ventilation is decidedly greater.

Having a hive thus inside a case necessitates more material and more labour, which means more cost, but where these facilities are in accordance with the bee-keepers' fancy, the small increase of expense will not be objected to.

At the back of the cover a flap falls down on hinges, thus allowing the hive to slide in, and the entrance in front communicates with that of the stock hive.

The hive shown is a Cottager's Frame-hive (made by the firm before mentioned), and has a large window closed by a shutter. The whole of the back thus opening allows of full access to the windows. Although the bars of the frames somewhat diminish the view of the bees and the interior, still there are many who have a sort of weakness for making an inspection which can thus to some extent be gratified.



A straw crown rests on top with a hole in centre for feeding. This straw 'quilt' is very excellent for preserving the health of the bees in winter, being slightly ventilating and allowing the vapour of the hive to escape without creating a draught of air. When the supers are put on the perforated zinc adapter takes the place of the straw crown as explained in the description of Neighbours' Philadelphia Hive last month, to which in outward form, when closed, it bears a close resemblance.

BEES IN POUND.

Near the close of one of those beautiful days with which we have been recently favoured, a swarm of bees was discovered in one of the port-holes of the Sherborne pound, and, as may be expected, those who first made the discovery thought themselves entitled to the prize; but as an entrance could not be effected without the assistance of the hayward, and without whose authority the 'strange swarm' could not be liberated, an application was made in the proper quarter, and the gentleman very kindly offered to allow the swarm to be removed, provided the usual poundage was forthcoming (2*d.* per head). 'Agreed,' said the over-anxious and would-be claimant, 'if you will give the numbers.' 'Well, there are just so many (giving the total), and if you have any doubt in the matter, then you may count them yourself.' As the 'ready' was not forthcoming in the way of toll dues, the busy little fellows are safely housed, and in a garden close by where they were found they have already added a few pounds, in view of a rainy day, and are not likely to again get in pound. Query—Will the hayward be obliged to hand over the produce of the impounded swarm to his superior, the lord of the manor?

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A PLEA FOR THE DRONES.

In the last number of the *Journal* I have noticed with sorrow the intense dislike with which many bee-keepers regard the unfortunate drone, and the many ingenious contrivanees with which they compass his destruction.

Now I have always heard that the best way of getting rid of an enemy is to convert him into a friend, and it is with the hope of bringing about such a result in the case of the drones that I venture to enter a plea, not only for less destruction, but even for a larger production of these placid and short-lived creatures.

In the last *Journal* I see that upon this subject you advise the excision of superfluous drone-comb in preference to the wasteful practice of destroying drones which have been reared at the expense of much trouble and material. I have myself acted upon your present suggestion ever since I took to the moveable comb system, and the power which that system confers of substituting worker comb, is, in my opinion, one of the greatest among its many advantages.

A question, however, arises as to the quantity of drone-comb that is desirable in a hive; a piece of the size of the palm of the hand is, as I think you lay down somewhere in the *Journal*, the quantity usually held to be sufficient, and it certainly seems as if, since the drones consume more honey than the workers and contribute nothing the fewer we have of them the better.

During the last two summers, however, I have observed that no hives of mine have done so well, especially during a glut of honey, as those which have a much larger proportion of drone-comb than this, amounting in some cases to one tenth or more of the contents of the hive. Now I have never seen it suggested before, but it occurs to me that there is a not unlikely way of accounting for this by considering the effects of a strong force of drones in a hive where a perforated zinc adapting board is used, the primary object of which is, of course, to keep the queen out of the supers.

Everyone, when supering without that convenience must have felt annoyance at the way in which the drones perambulate the supers, eating out the cells which one is most anxious to see filled up, and getting generally in the way; and the perforated zinc does good service also in guarding our supers from these bulky claimants of the store. Further than this we are all aware of the rivalry which goes on in the stock hive between the queen and the workers for the use of the cells, and how often in a good harvest time the latter, proving victorious, fill many of the breeding cells with the treasure whose arrival in the supers we are anxiously awaiting, excluding thereby the brood which in those cells would have been worth its weight in gold. Here it is, however, that our former enemies may become our friends. Restrained from the supers they satisfy their appetites from the cells in the breeding apartments and thus unconsciously range themselves on the side of the queen, while concentrated in that apartment the heat they engender allows every available worker to take the field.

I tested this system with satisfactory results during the plentiful harvest of last year in a glass frame hive, peopled with a cast of the preceding year, the combs of which were composed of drone comb to the extent of about one ninth; and during the whole of the honey glut, although supers containing above eighty pounds of honey comb were being worked at one time upon the hive, even the outside frames were two thirds filled with brood, while in my other hives two or more frames on each side were completely filled with honey and sealed by the time the first super was finished. Now though I have for some time read the *Journal* with a rare combination of pleasure and profit, I have never before contributed to its pages; so even if you do not consider this plea for the drone to be sound in its principles, I hope you will not consider the suggestion altogether worthless, coming as it does from the novel point of view of a complete—OUTSIDER.

[We are exceedingly glad to see the subject revived, and hope to see it fully discussed. Almost numberless are the letters we receive from which we could quote, 'My bees are doing wonders in the supers, but there are thousands of drones amongst them: what shall I do?' and we generally say, 'Let well alone.'—ED.]

BEE LITERATURE—WAX FOUNDATIONS.

I beg to enclose you a list of nearly 600 vols. of bee books as an addition to the list you published in the *Journal* for this month. In writing it out I have adhered as much as possible to your arrangement, only putting them into chronological order. The titles of the French and Latin books are given in those languages, and I have translated all the rest—most of which are German—into English. Bees are rich in literature, and there will be no difficulty in increasing the list to more than 1000 vols.*

Our favourites are doing well. We have had some fine weather for the last fortnight, and the prospects of a good honey harvest are cheering. White clover, our mainstay in this quarter, is just beginning to bloom, and should the weather keep right for the next two or three weeks, we shall be speaking of honey in cwts. again.

One of the greatest acquisitions to successful bee-culture in modern times, and on the modern system, has just been introduced to this district by Mr.

* We are obliged to our intelligent correspondent for the evident pains and trouble he has taken in assisting us to make our collection of 'bee-books' more complete. We are pleased to be able to say that other friends are likewise engaged in the same task; and at the termination of their labours we purpose to present the result to our readers.—ED.

Raitt, of Liff, in one of Novice's American comb foundation machines.

The rolls of this machine are engraved to the proper natural size of worker comb, so that the artificial foundations are, as a matter of course, the size that a bee understands, hence the cells are at once taken possession of, and dug out by the bees and filled with eggs by the queen inside, forty-eight hours after being put into the hive. For the last year or two I have been reading all the English and American literature on wax-guides, impressed sheets, comb-foundations, &c., and in the mass *pro* and *con* I got to be sceptical as to the comb-foundation, and had come to the conclusion that a mere strip of plain wax-sheet along the bar as a guide was all that was of any advantage. I had learned by experience that impressed sheets were not any better than plain sheets. As practical experience is better than theory in all things, I procured a few pounds of this comb-foundation to experiment with, and in a very short time I found it an acquisition of incalculable benefit. Yet in my experimenting I made errors and blunders with it, some of it warped and sagged, and made some of the cells of every shape but the right one. It did not require any moralizing about 'molecular strains,' &c., to show that the fault was mine in not using the sheets properly; and for the benefit of any who wish to give them a trial I shall explain how to use them. In putting the sheets in the frames attach them merely to the upper bar and cut them one inch shorter than the breadth of the frame, leaving ½ inch at each end clear for the bees to pass round. Insert the frames of foundation between two frames of comb in the hive. If you have not got spare frames of comb, the best plan is to give the bees three or four frames with strips of foundation about 1 inch wide for three or four days, till they have enough comb to cluster on them, fill up the hive with frames of the foundation, separating the combs to put the frames of foundation between, and in a week or so the hive is full of comb as straight as possible, and every cell as perfect as the natural.—J. S., *Arbroath.*

COMB FOUNDATIONS.

The bar frame and the honey extractor were great inventions, but their advantages are greatly neutralised by the capricious way in which comb is often built. We want the control of comb building so far as straightness and kind are concerned; we want all or nearly all worker comb in the breeding department, and we want our combs to be so nearly straight that any one can be interchanged with any other in the hive. Any invention that secures these results, and at the same time promises to effect an immense saving in time, labour, and wear and tear of bee life, must be warmly welcomed. And I think the time has come when we may throw up our caps and shout *Eureka!* But it is not by brush and plaster-cast; these may do very well in the hands of an expert like F. Cheshire, but I never knew another who succeeded with them. The mere manipulation is a caution—the tallow and shot, the daubing and brushing, the dozen spoilt sheets for one passable, the mouthful of hard-smoky-tasted wax you find in the centre of some super comb. Save us from all these troubles, if possible.

Mr. Cheshire's article in your last is evidently a case of special pleading, and it would be well to warn bee-keepers against being misled by it. The inevitable consequence of our refusing to use the machine-made foundations will be to get ourselves driven out of the honey market. From recent American journals I gather that leading bee-keepers are about to make a point of disposing of all their old natural combs, so that they can offer full stocks at about thirty per cent. under last year's prices. They tell us at what marvellously low prices they can raise honey, either comb or extracted, and even now it is selling largely in all our large towns.

Mr. Cheshire's objections to the machine-made foundations are just, perhaps, what may have been anticipated. My own experiments with what I believe was part of the same lot in some respects bear out his objections; in important ones they led to contrary results. My sheets were not commenced at the lower edge, but were regularly worked all over, and there was no warping or plaiting; the size being, however, wrong—four and a half the inch—I should not wonder if in some cases the bees refused to work on it or the queen to use it. In every case my bees built it out as usual, but the queen did not lay in it for some time and then bred drones. However, these are remediable faults: the sheets may be rolled so thick and strong that they will not warp, especially if hung so that the arch of the cell is uppermost. The soap used while rolling them can be thoroughly washed out which the maker of the imported lot appeared to have neglected. And the regulation of the size is a mere matter of direction to the engraver of the rolls. I send you a small sample of impressed sheet for my new machine, which you will find to measure five cells to the inch: also a piece of good old worker comb, measuring exactly the same. This latter, by the way, was taken from the box in which an Italian queen was imported, and proves the fallacy of the notion prevalent in America that the Italians build larger cells than the blacks.

I have not had time to test these new sheets thoroughly, as it is only twenty-four hours since I put the first into my hives. I find, however, that already they are built pretty evenly all over to the depth of half an inch each cell, and that a considerable quantity of honey and pollen are already deposited in them. I shall, however, faithfully record the results. I have not the slightest fear, however, now that I have the manufacture in my own hands, ensuring as it does genuine material worked to any thickness I may desire. The almost universal verdict of the Americans is in favour of it.—W. Raitt, *Liff by Dundee.*

[The specimens of comb-foundation sent are excellent, differing only from those we described (p. 169, Vol. III.) in colour, being made of pure bees'-wax instead of an admixture of paraffin. They are identical in size with the stereotyped plates issued by Messrs. Neighbour and Sons, a Lanarkshire Bee-Keeper, and by ourselves, but the edges of the rhombs are slightly thickened, so that the bees, by softening them, may utilise them for the formation of the cells' walls. We have every confidence that Mr. Raitt will give an accurate report of their value, and impatiently await it.—Ed. *B. B. J.*]

ATTACHING WAX GUIDES.

A correspondent suggests that a very simple method of attaching wax-guides to frames is with the blade of a penknife, which, after being heated, may be drawn quickly and lightly along the lower edge of the sheet, which is kept in its place, meanwhile, with the hand or with a wooden guide bar, as in the smelting process.

A FEW WORDS ON THE YELLOW OR ALPINE BEE.

'The yellow or Alpine bee is distinguished from the common bee by two yellow bands which encircle it. The first covers the whole surface of the upper ring of the abdomen; the second, which is separated from the first by a narrow black line, covers only a portion of the breadth of the second ring. In a young Alpine the two rings or bands are of a colour something between that of brass and copper. But as time goes on, the colour deepens, and gradually becomes that of copper. A lens will show that the hairs on a young Alpine are of a deeper yellow than those on the common bee.

'The Alpine bee is slightly larger than the common bee. Its cell measures $\frac{3}{10}$ths of a millimètre (·011 of an inch) more than that of the common bee in breadth. It has a lighter flight, and it buzzes with a softer buzzing. But the Alpine is of a more decided character, and is full of enterprise; it is more vigilant, and it defends its hives and young brood more effectually than the other against all enemies of the hive, both within and without, especially against the wax-moth (*Tinea galleria cerella*). More active than the common bee, it is at work earlier in the morning, and returns the last to its hive at night; its sense of smell is more subtile, for if in a moment of imprudence you leave about exposed near the hives the nourishment intended for some necessitous colony, it is the Alpine that always arrives the first to take part in the pillage.

'The principal reproach that you can bring against the yellow bee is a lack of honesty, and of all feelings of reciprocity. He will easily introduce himself into a colony of black bees, and live and work with them. But, though he expects other bees to open their doors to him, he will never show a like hospitality to others. You will never see a black bee allowed to introduce himself into a family of yellow ones, though it is the commonest thing in the world to see yellow bees living in common with black ones. The yellow bee swarms more readily, and amasses more honey than the black bee, but there is some reason to suspect that the latter quality comes from his greater aptitude for plunder, rather than from harder work.

'It is always difficult to keep the yellow race pure, though the half-breeds seem to possess the same characteristics as the pure race. It is certain that a yellow mother can produce ordinary black workers and bees of its own race in equal numbers, and this is no doubt because she has been fertilised by a drone of the other species. It is also pretty certain that an Alpine queen has a preference for a drone of the other species; as a result, half-bred bees are produced, which in turn produce only pure black bees, so that in the third generation the yellow race generally disappears from the hive.'—*From the Abbé Collin.*—LORRAIN.

ARTIFICIAL SWARMS.

I have tried a method of artificial swarming, which appears to answer admirably, and is much more simple than those usually recommended. I use the Lanarkshire hive, and, like other bar-frames, it gives no difficulty in manipulating. I prepare another hive for occupation, and place alone in it the queen taken from the hive to be swarmed; I then move the stock hive to a new place, and put the new hive in its stead. The regular foragers of the stock hive form a strong swarm in the new hive. Before making the experiment, I hoped in this way to leave sufficient bees for current operations in the stock hive, as not one bee is thus driven, and this expectation has been fully justified My fear was that as the new swarm would contain no very young bees that comb-building would not be well attended to by the swarm; in this respect my fears have proved without foundation. I made two swarms in this way, and in both comb-making has gone on more rapidly than the wretched weather we have had led me to expect. The queens have laid over 1000 eggs daily and the combs are most regularly filled, and on the twentieth day there were already a number of young bees hatched.

A note in your present number suggests that the following as to drone-killing may be of interest. I had five frames in a hive devoted to queen-raising, and numerous bees adhered to it belonging to removed frames, so that with hatching bees it became rather crowded, drones were abundant and apparently welcome, much honey was coming in, and there was plenty in the frames; I then removed a frame leaving four, but failed to take a fair share of bees with it: the consequence was immense crowding in the remaining frames. There being no queen no relief could occur from swarming, the next morning I found a pile of dead drones outside, so that the bees had in this way secured relief. They had left, however, a considerable number of drones, of which they had not since killed any.—T. A. CHAPMAN, *Hereford, June* 2, 1877.

PREVENTING SWARMS DESERTING THEIR HIVES.

On my return last night I found both my hives empty again, I found one swarm this morning, but the other I have altogether lost. I had a 'happy thought;' it struck me that perforated zinc adapter would confine her majesty to the hive just as well as prevent her ascending to the super, so I put the hive on an adapter, and sure enough they are all right to-night. Perhaps this may be a wrinkle worth notice under similar circumstances; of course, when comb is built and eggs hatching I shall remove it, as the pollen would be rubbed off the legs, as noticed by, I think, Mr. Poole.—G. R., *June* 11*th.*

BEES DESERTING HIVES.

Is not this very extraordinary? I had a very strong stock in a skep, which was hanging out on June 4th, so I transferred it to a Woodbury, excised most of the drone comb, and placed empty frames alternately with the full ones. To-day, noticing that it seemed very idle, I opened it, and was astonished to find all the bees gone! They had filled the empty frames, and every cell almost, whether new or old comb, contained either brood or an egg.

Now, what on earth can have caused this desertion? The hive is double-cased and painted white, so don't suggest heat. I don't know when they went, as Sunday is the only day I am at home in the middle of the day. In hopes that the brood might not all be chilled and dead, I have given the combs to my other stocks, placing them in the middle of the hives, alternately with the combs.

There seems to be a mania for desertion, as out of five swarms I have bought I have only one left, being that which I put over a zinc adapter, but finding many pellets of pollen underneath I have taken it away to-day, and fear they will even now go, as one lot had remained for eight days and then went away, abandoning three combs which they had built. How far would the bees be likely to stray under these circumstances? I have been inquiring at every garden near, and offered the gardeners a reward for each swarm, and yet cannot hear of any one of them. One, of which I clipped the queen's wings, has been out three times, and now the queen is lost, so I must unite with my weakest stock.

A few more disasters like these, and I shall give up bee-keeping. A stock which was very strong I divided on 29th May, and find, on examining it to-day, that there is no queen, nor any signs of a queen-cell having been raised, except one on drone-comb. There was plenty of eggs and brood, or, of course, I should not have divided. The swarm from it has built eight frames of comb, and is getting on famously. If any one can tell me how to prevent desertion taking place, I should be much obliged.—G. R., *Kennington*, *June* 17.

QUESTIONS FOR BEE-KEEPERS.

Kindly insert the enclosed queries in your *British Bee Journal* for next month. I need not say your own opinion on them will be most acceptable. I should be glad if one or two other experienced bee-keepers would kindly give their opinions on the following points:—(1) For how many years may a queen be considered capable of keeping a hive well populated? (2) How long may combs be used before they become unfit for breeding purposes? (3) What quantity of honey, respectively, might an acre of melilot and an acre of white clover be expected to yield per day, when in full bloom?—Marlburia.—*June* 7, 1877.

[Reply.—(1) A queen will keep a hive well populated for three seasons if she be healthy, properly fecundated, and no accident happens to the hive; after that, although she may linger for a fourth, or even a fifth year, she will, as a rule, be of comparatively little value.

(2) Combs have been known to have been used for breeding for more than ten years, and to have retained their value, though charged with the filmy envelopes of sixty or seventy generations of bees. A good deal of tearing down and renewal is annually done by the bees themselves, for in the best regulated hives there will occasionally be some dried or mouldy pollen which will require removal, and in doing this the bees remove the cell walls and throw out the encumbrance. Old combs may be made 'better as new' by shaving the cells down to about one-fourth their depth, leaving little more than the 'comb foundation;' the bees will then clear out and renew the comb *in a very short time*, if they have use for them. By this we mean that if an outside comb be so treated at a time when bees are *not* likely to want it for breeding or storage purposes, they will neither clear out the refuse nor attempt to renew the cells.

(3) The answer to this question must, in our opinion, be simply speculative. All the conditions being favourable and at their best—*i. e.*, the acre completely covered with blossoms; the weather of the sultry-moist character (both by night and day) that most encourages the secretion of honey, yet fine, to enable the bees to gather it; bees in abundance to ensure the ingathering, and convenience in the hives for storing it—we should think that 50 lbs. of honey per acre per diem would be a fair and moderate computation. It is, however, seldom that the five conditions named coexist, and if either be wanting, then, as in the game of 'Speculation,' the result will depend upon what 'turns up.'—Ed.]

DR. PINE'S LOTION.

I enclose P. O. O. for 12*s.* 2*d.* 10*s.* 6*d.* year's subscription to your *Journal*, 1*s.* 8*d.* for another bottle of that excellent bee-lotion and the carriage of it. This lotion enables me to laugh at my little friends and their stings.—C. H. H.

FURZE AS A HONEY PLANT.

As furze abounds in our part of the country, both in its wild state and cultivated as hedges, I have had good opportunity of watching our little favourites at work on it; and my opinion is, that it yields a great quantity of pollen of a light brown or dirty yellow colour, but no honey, as I could never detect them in the act of sucking. It began to bloom here the second week of March, and will continue till the end of this month.—G. F., *June*, 1877.

RAISING QUEENS—DRONE-COMB—SUPER HONEY—SCENTED SYRUP—SEX OF EGGS.

As a reply to the second question at page 36 of your June number, I take the following from the Abbé Collin. After speaking of the cases in which bees raise a queen for themselves, and when they fail to do so, he states that *he himself never had succeeded in getting bees who had lost their queen for five or six weeks to raise another, out of young brood of every age which he had furnished them with.* But he goes on to say:—

'According, however, to the testimony of many bee-keepers, both in France and Germany, bees who have lost their queen, even for a considerable time, can procure themselves another, if, before they are furnished with cells containing eggs and grubs, they are provided with a considerable amount of sealed cells, with the chrysalis in them of worker-bees. It is the young bees which issue

from the sealed cells, which must occupy themselves with raising the new queen.' *

This possibly may interest Mr. Jenner Fust in case he wishes to try it.

I am entirely one with you as to cutting out drone comb at the beginning of the spring, and dovetailing in worker-bee comb in its place; even with my (in your eyes) too conservative skeps I can manage that. But still one does get drones, and must have some, so it is as well to study easy methods of getting rid of them.

One of your correspondents at page 20 of the May number, to whom I sent a reply direct, asked how to prevent swarms, and obtain super honey. I have managed it very well by driving the bees with the queen into the super (my hives have flat, *moveable* tops, and I use a super of the same size); and as soon as I have ascertained that she is there, putting a sheet of perforated zinc between, to allow the bees to work *through the zinc*, from the hive into the super, where the queen is confined as prisoner, all apertures between the super and hive being carefully stopped up. Three hives I have so treated this year are doing very well, *i.e.*, as well as one can expect this miserable season; I don't know if your hives will suit for this, but I don't see why they should not. Of course you must have the combs in the hive touching the zinc, or there is danger of the bees hatching out a new queen below.† This plan will only do with a really strong colony, as soon as ever the comb-building is completed in the super, you must release the queen and let her go back into the hive.

You speak of 'scented syrup' for quieting bees in uniting, introducing queens, &c. Would you kindly put one line in the Replies to Queries in your next number, telling me how to procure or make this syrup?‡ I feel sure it is a capital thing. However, I have always managed to calm bees very well with my bellows and pipe.

I can hardly express, without appearing to presume with you, the very great interest which your magazine gives me, and the very great value of all your advice, as far as my very humble and limited judgment is of value. All bee-keepers will differ as *to details;* but there are certain sound principles which must govern all bee-keeping, whether in skeps, or bar-frames, or any machine a bee-keeper may employ, if he would be successful.

As to the sex of eggs (page 37, June No.) M. Collin says that according to the researches of Professor De Siebold of Munich, who went deeply into the matter, all eggs laid by the queen are the same, but that the drone eggs are not fertilised, while the others are. He says, 'The egg that produces a drone needs not to be fertilised; it produces already in the ovary of the queen the vital principle, but the egg that produces the female needs fertilisation; and to effect this, as the egg passes from the queen there issues from the ovary a thread-like instrument, which is introduced into the egg at the moment of its passage, and which conveyed with it the vital principle to form a bee of the other sex, which may become *either a queen bee or a simple worker*, according as it is reared.' This doctrine is called Parthenogenesis. De Siebold took eggs from worker-cells, split them in two, and examined them with a powerful microscope. He, then, was enabled to see in them several little fertilising threads or filaments,§ often still moving about in them.—G. F. Pearson, *Nancy, June* 4, 1877.

* This is precisely our experience, and fortifies our teaching.

† This idea is entirely different from that usually accepted. The great object has hitherto been to keep the queen *out of the supers.*

‡ 'Scented syrup' is simple syrup flavoured with lemon, peppermint, or nutmeg—we use the peppermint flavour; one or two drops of the so-called 'essence' being sufficient for a pint, which by the addition of half-a-pint of water is rendered sufficiently thin for sprinkling purposes.

§ We have followed and verified the experiments of Von Siebold, and have not the slightest doubt but that the 'filaments' mentioned are identical with 'spermatozoids' of the drone. The whole subject has been treated in this *Journal.*

THE IFIELD HIVE.

I send you as promised a description of the Ifield Beehive. I have for a long time thought that it would be a great boon to bee-keepers if they could get observatory hives as cheap as the hives of the Woodbury class; and I think I have at last achieved this result. This hive is made of $\frac{1}{2}$-inch board, well planed: it has three large glass windows in frames, two of which let down, the other one is used for a rest for the frames, and is consequently fixed. Both windows and shutters are on neat little brass hinges, and are fixed to the legs with iron hooks and eyes. The hives are made to contain as many frames as are required; the usual size is, inside measure, $14\frac{3}{4}$ by 18 inches, $11\frac{3}{4}$ deep, outside measure, $21\frac{1}{2}$ by 22 inches; it contains twelve of Abbott's standard bar-frames which are all mortised and dovetailed together, and also glued; they are made of $\frac{1}{2}$-inch stuff. The legs are made as well as the keys, of 2 by $1\frac{1}{2}$ inch stuff, so will not easily rot. One of the floorboards is made of $\frac{3}{4}$ inch, and the other of $\frac{1}{2}$-inch wood, strongly ploughed and tongued together so as to prevent warping, with a space of two inches between each, both of which pull out so as to prevent crushing and suffocating of bees. The sides of the roof are 7 inch by $10\frac{1}{2}$ with ventilating holes at each end; it is fixed to the body box by two strong hinges, with a piece of iron wire to prevent it from falling back and straining the hinges. The supers are nine in number made of $\frac{3}{8}$-inch stuff, 4 inch high, and 18 inch long, the top are $1\frac{1}{2}$ broad, and the sides 2 inches with glass at each end fixed together with wire fasteners. This hive, complete, painted any colour, with quilt, roof, body box, and supers, can be supplied at 32*s.* 6*d.* It is guaranteed to be as strong and lasting as any other hive of its kind.—R. Blaker, *Ifield Vicarage, Crawley.*

A PROTEST AND EXPOSÉ.

In the May No. of *B. B. J.* on page 20, A. C., Keith, N. B. says:—'I am very sorry for one remark you make, viz., that purer honey can be

obtained from bar-frame hives than from straw ones. Last year I took the honey from an old straw skep, without any intention of exhibiting it. Well, it took the first prize over the bar-framers.'

In a note appended the Editor evidently thinks super honey is meant, and doubtless A. C. is pleased to let it be so. The fact is that A. C.'s was drained honey after the approved method of fifty years ago, and being taken from an old skep should, as A. C. well knows, never been entered for competition. No run or extracted honey from bar-frames was exhibited, which A. C. also knows. How then could he have taken the prize over bar-framers? Is it the work of a man who can test hives, and bees, and systems 'honestly and without any bombast,' to first creep into a show with a spurious article, and obtain a prize for it, then unblushingly proclaim the fraud to the world, with a mean 'fib' stuck on the back of it?—R. G.

APICULTURE IN SCOTLAND.

In your valuable *Journal* of this month I see that one of our friends, residing in East Grange, is afraid that passengers would be attacked by the Ligurian bees if placed near a railway station. Now I am glad that your reply has been so decided. Truly, there is no fear of that, which I can positively affirm, for, as we say in Scotland, 'the proof of the pudding is in the preeing o't' (or tasting it). I was invited by Mr. Patterson (a railway official) to pay him a visit, and to see his bees. He has twelve stocks, one of which are Ligurians—queen got from yourself. Now, they are all in his garden, close by the railway station, and the passengers have never been annoyed; but, on the contrary, a great many tourists in the height of the bee season (July and August) devote a little time to see the bees—and truly they are well repaid. The secret of which is, that he manages his bees on the bar-frame system, and is therefore able to reveal to inquirers the mystery of the beehive. While I was there he examined every comb of nine hives with a strong magnifying-glass, for the purpose of thereby displaying the beautiful queens, and the larvæ in all its stages, a treat which cannot be obtained by the ordinary straw skep, and during all the time we never received a single sting. I also visited many other apiaries, but could only get a look into the straw skeps, and all that could be said about them, that some of them seemed to be strong and others very weak; one bee-keeper having as many as 50 straw skeps, and the oldest bee-keeper in the North; he is a very nice old man, but thoroughly fixed to Mr. Pettigrew's opinions.

I may also mention that I saw another gentleman whom you have had communications with, as I think he got some Ligurians from you; he is a bachelor, and in lieu of a better half he has put a hive in his bedroom-window. Matters may change if he gets a mate—perhaps not: he is very fond of his bees. He, however, is a thorough bee-master, and conducting his apiary on the bar-frame system; but the old straw skepists shake their heads and look upon all the modern inventions with suspicion. He is following in the same path as Patterson, and I have no doubt that ere long the north of Scotland will be as famed for bee-masters as it is for hills, scenery, and heather honey: they may, by-and-by, be up to the East of Scotland, of whom Mr. Raitt is the present champion, and who is doing more for the advancement of bee management in the way of lectures, lessons, and answering questions, than any one on this side the borders; he is a second Mr. Abbott.

I may also say that Mr. Patterson's inventive faculty is well developed. (I am a firm believer in phrenology, Mr. Editor, and mean to read the heads of the Ligurian and black bee so as to be able to settle definitely the fighting propensities of these tiny soldiers.) The inventive faculty has developed itself into the manufacture of a new hive; not so much the size or shape, but the composition of which it is made.

This hive was tenanted in the fall of last year, and on its examination, on this my visit, was in the very best condition, which indicates its superiority over both the straw and other wooden hives. This is but a short trial to give it a 'certificate of merit,' but the winter has been sufficiently severe to test its adaptability for wintering bees successfully. The inventor has not yet made it a patent, but he does not wish to have the secret revealed before he finds it to suit summer weather as well as winter. Mr. Patterson is not altogether unknown at our provincial shows, and we may expect to see his production before the end of the season. As regards myself, when I commenced bee-keeping I got a copy of Mr. Pettigrew's *Handbook on Bees*, from which I received a vast amount of valuable information and practical advice worth the price of the book. Books will not teach without practical knowledge: but however valuable his information may be, it, to my mind, is now in the shade, and to all who aim at managing their bees in a way whereby profit and pleasure can be combined, I would say that the straw skeps and all their supporters are dying a natural death. They are very aged and infirm compared with the young rising generation, who are using the bar-frames, and learning in the school of experience that time to bees is honey, and to their owners, therefore, producers of money. Wishing you every success in your labours,—A Lover of Bees, *Perth*.

MOBILITY *v.* FIXISM.

I must thank you for your polite answer of the 29th May to my queries about Bee Shows. I will on future occasions, when I want a reply, send an envelope to save you all trouble on the score of address. I shall write to the Secretary mentioned, though I fear the expense of sending hives to the show may deter me from exhibiting. If I had been going to England I would have taken them.

I thank you also for your Catalogue; and certainly your Cottager's Standard, with quilt and floor-board, for 8*s.* 6*d.* leaves nothing to desire as regards price. The first time I come to England I shall certainly treat myself to one, and give it a fair trial.

Moveable-frame hives were commonly used in France more than twenty years ago, and it is only during the last ten years they have been falling into disfavour, except with pure amateur bee-keepers; as for scientific bee-keeping, of course, their superiority is self-evident. Their superiority, also, when honey is coming in readily and the season is hot and work full and long, is also acknowledged; and this probability Mr. Pettigrew knew full well when, as it seems, he declined a challenge from you. The objections here urged against the moveable-frame hive are: 1st, that the bees suffer far more from cold in winter in it, and consume far more food to keep them warm than in a well-built straw hive: 2nd, that it tends to produce what they call here 'loque,' or rotten broods, and also a disease which the Germans call 'thirst.'

Dzierzon says, 'The hive with moveable frames is as prejudicial to the young brood and to the bees in winter as it is handy and excellent for the storage of honey.'

Baron Berlepsch says, 'It is certain that the invasion of rotten brood in Germany dates from the same epoch as the hive with moveable frames.'

The Dzierzon hive has only regulator-bars and no moveable frames. The Abbé Collin agrees entirely with Dzierzon and Berlepsch in this; and M. Hamet, the editor of the French *Apiculteur* magazine, while admiring 'mobilism' for its handiness, recommends, for the production of honey in the long run, 'fixism.' The cold, however, in winter

is much more severe in the East of France and in Germany than in England, and very likely you have got over both difficulties in your 'Standard' by the quilt and by superior ventilation. But taking the cost of an improved skep, with moveable top and in compartments, at from 3*s.* to 6*s.*, a hive which costs 32*s.* is heavily handicapped against it from a commercial point of view.—G. Pearson, *Lapetite Malgrange, Nancy* (*Meurthe*), *France, 20th June*, 1877.

[Note.—We agree entirely with all the authorities named so far as to admit that until within the past few years the bar-frame hive deserved the adverse opinion they formed of it. *Our* objections to it, as it was, will be found broadcast in the *English Mechanic* and *World of Science* of about five years ago, and since, in the early volumes of the *British Bee Journal*. At that time dysentery and foul brood were rife in them, and we then gave the reasons why, and pointed out the remedies necessary. Most of our suggestions have been adopted, and the sanitary condition of the hive has been so improved thereby, that dysentery and foul brood are no longer dreaded by us. We believe that foul brood is the outcome of dysentery, the latter being caused by dampness, brought on by the coldness so much deprecated by the authorities above mentioned. We claim, however, that with the quilt, on a *properly* made hive, the evils described are almost impossible, and that mobility in wooden hives can be obtained without foregoing any of the advantages claimed for hives, with fixed combs, made of any other material. The comparison of prices is unfair, though not intentionally so. The Abbé Collin's hive might properly be compared with our Woodbury hive at seven shillings and sixpence, but the more expensive should be set against the elaborate and beautiful straw structures which sell for higher prices than the Standard, and yet have neither roof nor stand included.—Ed.]

A DOUBLE SWARM.

Mr. S. Smith, of Charlton Horethorne, Somerset, writes:—'On Monday, 28th May, I had a swarm of bees, but soon after they came out I found they were returning to the parent hive. I at once sought for the reason of this, as the weather was fine, and found the queen disabled, and took her, but she soon died. The bees having all returned to the hive, I at once put on a super, which was speedily occupied, and the bees remained till Sunday, June 3rd, when they threw off a very fine swarm. These were taken and are doing well, being very strong. On the following day, Monday, 4th June, the same stock threw off another swarm, which I also took. They are very good, by no means a small swarm, and are also doing well. There can be no mistake about this, as I saw each swarm come out, and took them both. The old stock is looking as strong as ever. I have since removed the super, which had neither honey nor comb in it. I have kept bees thirty-five years, but have never known a case of this kind before.'

[Such cases are common enough, the old queen died, several young queens were raised and came to maturity at about the same time—two led off swarms, and a third stayed in the hive to reign, after killing off her sister princesses.—Ed.]

NOVEL MODE OF HIVING BEES.

A correspondent writes as follows, from Castle Cary, Somerset:—'In these days of improvement, probably bee-keepers may be grateful for any novel idea as to management of bees. The following is certainly a new mode. As three of "Mother Cary's Chickens" were taking their usual Sunday airing, a swarm of bees hove in sight. The "chickens" resorted to the old method of "charming," making a great din to the bees, and met with success. But how to get them home, a distance of about two miles, puzzled them for a little while, till the ingenious mind of one of them prompted him to turn his shirt into a hive. Stripping off the said article of clothing, and tying it round the middle, the bees were transferred, the tail securely tied, and the swarm taken home safely. Strange to say, neither of the captors was stung.'

[If our correspondent will refer to a communication from the 'Renfrewshire Bee-keeper,' vol. II., p. 191, he will find that the method of hiving bees mentioned by him has been anticipated.—Ed.]

First Attempts.—I must tell you I have adopted the quilt, and believe the plan excellent, but am at a loss to know the proper thickness. I saved a queen from a stock that was dying of foul brood, and made an artificial swarm, using her as their future sovereign. Being my first attempt, I hope I shall succeed. I found it made the parent stock bare of bees, but in a few days they seemed to recover.—A Lady Bee-keeper.

Bee-swarming Extraordinary.—We are informed that Mr. J. Hodges, of Pendomer, Somerset, who has been a bee-keeper for twenty-five years, had two swarms of bees from one hive at one time on May 29th, and on the 3rd of June the same hive threw off another swarm, making three swarms in five days!

A Monster Swarm.—Mr. E. Lugg, of Stoke-sub-Hamdon, Somerset, had a very large swarm on Thursday, May 31st. A correspondent says:—'The hive was weighed before the bees were put in, and it was just 4lbs. After the bees were put in the weight was over 14lbs.'

Prolific Bees.—J. W. E. writes:—'Mr. Jno. Brown, farm bailiff to C. J. Parke, Esq., of Henbury House, Sturminster, Marshall, Dorset, had from two hives of bees he had in 1875, ten swarms; from one hive of bees he had in 1876, five swarms; and May 16th, 1877, one swarm.'

A HIVE OF BEES.

Just look at my observatory hive,—
A city to the view revealed; alive
With bustle, yet what perfect order reigns!
One interest,—all bent on mutual gains.
The busy workers hurry to and fro,
With constant, rapid zeal they come and go.
In watching them, collecting from the flowers,
With brush and tube, have we spent pleasant hours;
But here, these crystal walls expose to view
Their home, their treasures, and their habits too:
We see them here within their loved abode,
As one by one they bring some precious load.
They come with many colours, but yet each
Distinct, and thus a Heaven-taught lesson teach:
These propagators no confusion cause,
They give and take, obeying Nature's laws;
In all they do they act at Heaven's command,—
That creature-instinct seen on every hand.
See *builders*, fanners, and unloaders too;
The watchful nurses have enough to do;
These last are toiling with unceasing care,
Order and industry reign everywhere.
No traitor, thief, or prison here you find;
All faithful to the laws and of one mind.
The Queen with regal step moves o'er the cells,
Dropping her little eggs as into wells,
From which her progeny will spring anon,—
A generation soon is here and gone.
Honey is their delight; the Great All-Wise,
Who Nature ruleth, giveth rich supplies:
The Bee doth gather in (O wondrous plan!)
These stores of wealth, and for the use of man.
Ye busy insects! in your skill divine
We see a ray of matchless wisdom shine.

G. Minson.

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee Meeting held at 15 Beaufort Buildings, Strand, on Thursday, June 28, 1877. Present: Mr. Cowan (in the Chair), Messrs. Hooker, Hunter, Jackson, Minson, A. Neighbour, and the Hon. Sec. The minutes of the previous meeting were read and confirmed. The Secretary read a letter from Mr. C. H. Edwards, resigning his seat on the Committee.

A letter was read from Mr. C. E. Norton, Hon. Sec. of the Dorsetshire Bee-keepers' Association, enclosing prize schedules for the shows at Dorchester and Sherborne, proposing that the medals presented at each show by the British Bee-keepers' Association should be offered as follows, viz.:

Extra Prizes offered by the British Bee-keepers' Association. No entrance-fees.

For members of the British Bee-keepers' Association only.—For the largest and best harvest of honey in comb, from one stock of bees, under any system or combination of systems; to be attached thereto a legibly written explanation of the method adopted, with dates of supering, swarming, &c., also locality, pasturage, and any other particulars concerning his apiary the exhibitor may be disposed to give. 1st Prize, Silver Medal; 2nd Prize, Bronze Medal.

For members of the Dorsetshire Bee-keepers' Association only.—For the largest and best harvest of honey in comb, from one stock of bees, under any system or combination of systems; to be attached thereto a legibly written explanation of the method adopted, with dates of swarming, supering, &c., also locality, pasturage, and any other particulars which the exhibitor may be disposed to give. 1st Prize, Silver Medal; 2nd Prize, Bronze Medal.

For the Cottager, residing in the county of Dorset, gaining the largest number of prizes in the Cottagers' Classes. Bronze Medal.

The Committee approved this arrangement.

A letter was then read from Mr. W. N. Griffin, Hon. Sec. of the Devon and Exeter Bee-keepers' Association, asking the Committee to suggest a class in which to offer the silver medal reserved for competition among members of this Association. The Committee suggested the same class as already settled for the Dorsetshire Association.

The Hon. Sec. then read a letter from Mr. Poole, Hon. Sec. of the West of England Apiarian Society, asking information as to the classes in which the Association's medals should be given at the Weston-super-Mare Show. Mr. Poole also sent printed Schedule of Prizes for the Taunton Show, in which some of the medals were offered, by a misunderstanding, and without consulting this Committee, for hives and bee-furniture. The Committee, after discussion, unanimously passed the following resolution :—

'That this Committee regret that the West of England Association should have disposed of the medals offered without consulting this Committee, as it was not the intention of the Committee to give further awards this year for hive-making or exhibitions of bee-furniture, feeling satisfied that the British Bee-keepers' Association have in previous years done quite sufficient for the purpose of introducing hives, &c., of improved construction, which are now procurable at every price, and of many patterns; this Committee would now rather reward those bee-keepers who have taken advantage of the information procured for them, and would wish the award of medals for the results obtained in honey. This Committee would point to the Schedules of the Dorchester and Sherborne Shows as exemplifying the manner in which the medals should be offered, and this Committee do not feel justified in presenting the medals for any other purpose, and trust that the West of England Apiarian Society will be able to amend their Schedule accordingly.'

The Hon. Secretary communicated the contents of a letter from the Secretary of the Caledonian Apiarian Society, stating that that Society had abandoned the idea of an International Show at Carlisle.

The Committee having, at the desire of some of the members, communicated with the principal hive-dealers, &c., requesting to know if they were disposed to allow to members of this Association a discount on purchase, the Hon. Secretary reported that the following offers had been made by the undermentioned makers, viz.:—

R. Aston (Bee and Drone Traps)	20 per cent
R. C. Blaker	5 ,,
— Green (Maker of the 'Hartlip' Hive)	5 ,,
J. M. Hooker	20 ,,
James King	10 ,,
James Lee (on Orders under 2*l.*)	5 ,,
,, ,, (on Orders amounting to 2*l.* and over	10 ,,
P. E. Martin (on Orders under 5*l.*)	10 ,,
,, ,, (on Orders amounting to 5*l.* and over)	15 ,,
G. Neighbour & Sons	5 ,,
W. J. Pettitt	10 ,,

Also, with a few reservations, of which particulars may be obtained either from the Hon. Secretary, or from the makers themselves—James Hamlyn, 10 per cent; A. Rusbridge, 10 per cent; W. W. Young, 15 per cent.

The Hon. Secretary submitted a design by Messrs. Waterlow & Sons for the Prize Certificate of the Association, and it was, with a few slight amendments, approved and ordered to be printed.

The Committee then resolved 'That the Secretary report to the Committee at their next meeting a summary of the work done by the Association up to the present time, and of that contemplated during the ensuing season.'

The Secretary also further reported ten new members since the last meeting, in addition to the receipt of a subscription from the Dorsetshire Bee-keepers' Association for the current year.—Fox Kenworthy, *Hon. Sec.*

Ealing, W., 28 June, 1877.

Echoes from the Hives.

Kelvedon, Essex.—'Our little friends and workers the bees are not doing so much this season (at present) as they did the last one. I have just commenced my honey harvest; I took about 12 lbs. on Saturday, very fine quality. I should like to bring out and develope the nadir system, as I feel sure it is a good system for obtaining honey in large quantities. I have some very fine ones working, but not so vigorously as last year. I expect to have eight or ten filled; I should have had more, but three or four swarmed, and I did not put them back again, and so lost the nadirs. I do not expect so large a harvest as last year; honey is not so plentiful, and the spring was very cold and late. How are the bar-hives getting on this season? because, after all, however beautiful the *theory*, we must judge by results.'—W. T. B., *June 26th.*

Wadsley Bridge, Sheffield, June 7th.—'The weather has been very bad here, with few exceptional short periods, all the spring, and one man I know, who had eighteen stocks last autumn, has now only five. He sold one, gave one away, and the remainder have died; in fact, I never heard of so many disasters about here.'—W. C.

Marlborough.—'The advertisement of L. Sartori, Milan, in the *Journal*, would be more intelligible to the majority of your readers if they were informed how many pounds English weight is represented by 25 kos.* One naturally feels interested in an establishment whose sole object is to forward the interests of apiculture, without regard to its own.'—G. C.

Wax Guides.—'I have not been so fortunate as I expected in my first trial of guides from plaster casts of comb. I had excised a drone-comb from a frame, carefully removing all traces of it from the bar and sides. I

* 1 kilogramme = 2·205 lbs. avoir.

placed a guide from the plaster casts of worker-comb, according to Mr. Cheshire's directions, under the bar, about half-an-inch deep, and replaced the frame in the stock early in May, feeding slowly through two holes. On examining the hive, June 4th, I found that the bees had made worker-comb the depth of the guide, but below that the whole frame was full of drone-comb containing brood.'—G. C.

'*Liverpool, June 8th.—Re Correspondence, Martin.*—I would advise you to name yours "Abbott's Standard Bar-frame Hive." Took First prize, Crystal Palace, 1875, also Glasgow, 1875, and so on. As the name "Standard" under present circumstances may be adopted by any maker, there is no other course open to you, and I should suggest your doing so promptly in the interest of the public. Excuse brevity. I have no "Standard" to advertise under the colour of a letter.'—D. A.

Epsom, June 15th.—Bottomless Supers.—'I had some hives from you last year, with supers which have no bottom rail for the combs, and consequently the bees fasten the combs to the crown-board of the hive. If I could only get hold of the inventor I should like to saw him up into supers, and make his bones into bee-bread, for inventing such stupid things. The supers being now half filled, should, I believe, be placed above another; but this it is impossible to do without breaking the comb.'—E. S. F.

[NOTE.—Our instructions have always been to fit every super with a bottom-board of its own, no matter how thin, so that it could be removed intact.—ED.]

Leicester.—'Kindly send 6*d.* of assorted Leaflets, for I want to distribute them amongst the heathen about here, who almost fall down and worship a dirty straw skep covered with a piece of old sacking literally swarming with vermin, and topped with a broken puncheon. Go on with your good work, for the sake of the little busy bees.'—C. W. C.

The editor of the *Arbroath Guide*, in an article on the importance of horticulture as a means of profitable recreation, continues:—'Ere we have done with the [Arbroath Horticultural] Society's schedule we must not omit to notice an entirely new feature, viz., the appended prize list for exhibits of bees, hives, honey, &c., which will furnish a miniature show of itself. During the past year or two there has been a marvellous resurrection of interest in these useful insects and their products, and the result has been the formation of the East of Scotland Bee-keepers' Association. Several enthusiastic members of the Association are resident in this locality, and an arrangement has been come to between the two Societies whereby the bee-masters are to have a show of their skill and produce; the result of humanitarian principles, along with the show of the Horticultural Society.'

Queries and Replies.

QUERY No. 213.—FERTILE WORKERS.—1. I think myself a very illused man. The hive with the fertile-worker I upset at a distance from home, and, putting a new comb of Ligurian brood in it, returned it to its stand; and now I have another fertile worker in it (unless I am much mistaken), and one much more prolific. What shall I do? Shall I take the combs and give them, brood and all, to a swarm that I had on the last day of May? There are not bees enough, with the fertile-worker, to cover more than two combs. These I prefer to sacrifice.

PREVENTING SWARMING FROM SUPERS.—I open my letter again to ask about swarming and supering. Two of my hives have swarmed after having taken to their supers; one stored honey in the decoy-comb, the other built comb and stored honey, and after all have swarmed to-day. I am in despair. I don't want swarms, but honey. The directions say, Put another super on when the combs are built out to the end, and put on supers when the hive is full of comb. Old hives, of course, are full of comb all the year. Neither of my supers were full of comb; and yet, I suspect that they were, in one case, so full of bees that they had no room to build comb in the supers; so it appeared to me last night. Ought I to have put on a second super?

HONEY-GETTING.—How do the great honey-getters manage? I think this subject needs more ventilation. My supers are Lee's and Neighbour's sections.

REPLY TO QUERY No. 213.—1. We know of no better means for getting rid of a fertile-worker than has already been published in this *Journal*, viz. take the stock to a distance, say fifty yards from its old stand, and take away, free of bees, all the brood-combs save one, upon which the fertile nuisance will remain. The bees being all old ones that have flown, will, on leaving the hive, go back to their original stand; so the poor pretender will be left almost alone, to fall a victim to the first set of robbers that may come that way.

The combs may be given to any other stock, or brood-combs may be added to them for the bees belonging to the fertile-worker to hatch out, to strengthen their own numbers.

2. Swarming cannot be absolutely prevented, but may be delayed, or its probability minimised.

When swarms leave supered stocks adepts at honey-getting return them in the evening, after having cut away the queen-cells from the stock-hives. In the case of stocks supered, after first swarms have issued, the returning at night of second swarms is generally sufficient, as the young princesses heading the latter will be nearly sure to engage in royal combat with their sisters in the hive, and in the morning there will be but one regal survivor. It would, doubtless, be a good plan, a few days before the height of the honey-season, when the attainment of honey is the chief consideration, to encage the queen, so that her prerogative of egg-laying shall be limited to one single comb. This would prevent the over-production of brood, and would set at liberty many bees otherwise required for nursing, and would also prevent the consumption of honey necessary, where nursing is largely carried on; so that in a few days there would be little unsealed brood in the hive, and as a consequence nearly all the honey that came in would be stored.

The Americans have proved that, where young bees have no nursing to do, they readily go to work, and work hard, too; so that this suggestion, if carried out, would speedily double the number of workers and reduce the expenditure of honey to the minimum. Of course, after the battle the cost *must* be counted up. It may be better to do so beforehand, and consider whether the honey result will compensate for the loss of brood consequent on the queen's imprisonment. In our opinion it would do so. The queen and comb could be enclosed within a casing of adapter-zinc, so that the bees could have access to her; and there would thus probably be no queen-cells raised, or attempt at swarming made. The comb enclosed should contain worker-brood only, or might be an empty one, consisting of worker-cells only.—ED.

QUERY No. 214.—I should be much obliged if you would give me a little advice on a matter that I cannot understand; an answer in next month's *Journal* will be sufficient. I do not think that my hive is in the condition in which it ought to be, as I have found, on examination, that in some of the combs there is decayed brood. It does not agree with the description given of foul-brood, as there are some of the rotten grubs without any covers; others have covers that are of the ordinary colour, and I have not found any black covers with small holes in them; and there is no particularly strong or offensive smell from the dead grubs. In other respects, the bees seem to be pretty healthy, as there are drones and queen-cells in the hive. I shall be glad if you can help me in this matter.—W. S. C.

Reply to Query No. 214.—Being under quilts, which afford comfortable ventilation, the rotten brood will in no case become so offensive to the smell as when boxed in by a close-fitting crown-board; and, therefore, it may possibly be foul-brood in a mild form. It is, however, very seldom that stocks afflicted thus swarm, or make preparation for so doing: and therefore, the presence of queen-cells and drones indicates rather that the stock has swarmed, and that sufficient bees have not been left behind to keep up the temperature necessary for the full development of the brood, and that some of it became chilled during the cold weather of May. It will, however, soon discover itself; if simply the effects of cold the bees will clear out the cells; if foul-brood, the cells will become gradually filled with the filth, and the combs will become useless, and worse than useless if temporised with or exposed.—Ed.

Query No. 215.—In the summer of 1876 I noticed great weakness and inactivity in three hives. On examining them, I could find no queens; but, on second examination, found three queen-cells in one of them, and so supplied the others. I had no drones in 1876, but one of my neighbours had. I made only one swarm, taking queen, brood, and a few bees from one hive and the remaining bees from another. In the autumn I had three weak hives and two nearly without bees. I strengthened them with driven stocks; took no honey, but fed all five to a nice weight, 15 to 20 lbs. for the winter. I think they increased their numbers during the feeding in September and October. March, 1877, found them looking very well, but did not look for brood for fear of chilling them. They would not take food, as I thought, because of the cold east wind; but they have never taken much this spring, and will not now. May 7.—1st hive. Drones flying, no queen, and only drone-brood; weak. 2nd hive. Dead; some foul-brood, seemed to be caused by the bees having had to leave it to follow the food in cold weather The other three hives are all very weak, and no brood. Could find no queen in any of them during the month. United all four into one. June 2.—Mr. Pettigrew gave me a bit of comb with new-laid worker-eggs in it. I put it under the quilts on the bars, with a little box over it; but the bulk of the eggs are untouched. To-day, June 11th, they are taking in a little pollen and honey. There are some drone-grubs, looking healthy, curled up at the bottom of a few cells. There are also, on another comb, two very large cells, sealed horizontal; they might be queens.

I may have caused foul-brood in 1875. I have been in the habit of cleaning dead-brood out of cells, and where necessary drying the cells with a bit of cotton on a pin, using the combs again when wanted. Is this a case of foul-brood? If so, how must the wooden hives be disinfected? Is the honey safe after boiling? Is it safe to use one or two of the combs that have not been used for brood or honey, as guides? I cannot boil my inner cases. Will it do if I scrub with hot water and soap?—R. H. C., *Manchester; June* 11, 1877.

Reply to Query No. 215.—The first stock, if it has no queen, must have a fertile-worker, the rearing of whose drone-progeny has worn out and exhausted the normal worker-bees. It will perish.

Stock No. 2 died, most probably, as suggested; but, had there been winter passages through the combs, the catastrophe might possibly have been averted.

The foulness of the brood may simply be from its having rotted since death.

The piece of comb given by Mr. Pettigrew should have been placed in the centre of the hive amongst the bees (it would have been better had it contained young larvæ), as they would have been more likely to have attended to it; but, inasmuch as all the bees were old ones, the chances of their raising a queen were small indeed. Beside this there is evidence, in the absence of a queen and in the presence of the drone-grubs, of the existence of the abominable fertile-worker, who, while she will permit, with fine instinct, the raising of queen-cells (?) on drone-comb, by the workers, whose instinct in turn teaches them that a true queen is required, will not permit the raising of queen-cells from the worker-brood. She has sufficient of the queenly instinct to know that the former will come to nought, and that the latter, if allowed to become perfect, would put an end to her authority. The elongated cells might have been intended for queens, but if they come to maturity only drones will hatch out.

Foul-brood (*i. e.* the disease so-called) has nothing, in our opinion, to do with the failures enumerated; queenlessness and the presence of fertile workers, in the possibility of which latter Mr. Pettigrew affects not to believe, are the causes to which the dwindling is to be attributed.

Elsewhere in this No. of *Journal* will be found a means of getting rid of the fertile nuisance; and then, if you give the bees a comb of *hatching*-brood, some eggs, and some young larvæ, a queen will, in due time (about fifteen days), be brought to light.

In cases of foul-brood, the hives should be scalded or baked; disinfected by painting with chloride of lime, re-washed and varnished inside; the honey should be boiled and the scum removed; the combs melted into wax, or buried deeply in the earth.—Ed.

Query No. 216.—Crooked Combs.—I have a good swarm, which I hived a fortnight ago into a bar-frame hive, fitted with ten rather large frames (Lee's of Bagshot); and from a little window in the back, 8 inches by 4, through which I can see the ends of four frames, they appear to have built very crookedly, at any rate with respect to those combs, the ends of some coming between the frames instead of in them. All the frames were provided with guides; but, I am afraid, the heat of the hive may have loosened some and caused them to drop out, as I have seen happen in supers. I have not opened the hive at top to see how far the mischief extends, as I have thought it best not to disturb them now. What would you advise me to do, and when to do it?—F. W., *Pangbourne.*

Reply to Query No. 216.—It is possible that the combs may be built fairly within the frames, but that the ends have been extended through there being too much space between the frame-ends and the window. A common fault, caused by the windows not being flush with the inside of the hive. You cannot, however, well judge of the true condition of affairs without removing the quilt, and looking from above, and even then it will be dangerous to meddle with the new combs, which, being soft and tender, will not bear rectification. If the combs be crooked it will be better to wait until the end of the season, when they are tougher, and then extract the honey, and rectify them.—Ed.

The world is a hive
From whence thou canst derive
No good but what thy soul vexation brings.
But ease thou meet
Some pretty, pretty sweet,
Each drop is guarded with a thousand stings.
Quarles.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. Walters, *Maidstone.*—Through an irregularity in your address, the letter sent on the 11th June, containing the information desired, was returned through the dead-letter office.

Foul Brood.—It is never safe to use again anything belonging to an infected hive that cannot be thoroughly boiled or baked, and disinfected.

Covers for Binding the British Bee Journal, *may be had, price* 1*s. at the Office, Fairlawn, Southall.*

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 52. Vol. V.] AUGUST, 1877. [Published Monthly.]

Editorial, Notices, &c.

AUGUST.

Our retrospect of the past month is not by any means a pleasing one, for, except occasionally, it has been cold, dull, overcast, and rainy; and in numerous instances the poor bees have suffered from destitution, and but for having been fed would have perished. There are doubtless many parts of the kingdom in which, from the proximity of abundance of honey-yielding flowers to apiaries, the yield has been large, but the general tone gathered from correspondents is one of regret for the extraordinary lateness of the season coupled with fear that there will not be time ere autumn's chills prevent the secretion of honey by flowers, for the bees to do more than fortify themselves for the winter ensuing. Swarming throughout the country has been late, and except in favoured districts, or where they have been fed, have not nearly filled their hives with comb, and, having discontinued comb-building, will when they recommence, if a honey yield should set in to warrant them in doing so, build as a rule drone-comb only, in which to store their surplus of it. 'Everything being late,' to use an expression common in our locality (nine miles west of London), we yet hope (and bee-keepers are always hoping), that the rainy month of St. Swithin, on whose holy-day the christening of apple as is customary (proverbially) took place with a vengeance, may but be preparatory to a more congenial August, when the bees may revel in white clover, and make their owners as happy as themselves. Though surrounded on three sides with miles of meadow land, our bees have not had an opportunity of gathering from their favourite flower (the clover), for, as is general, the grass was cut before it came into flower, and the second crop has not yet (23rd July) appeared. Hedgerows are fairly laden with the blossom of blackberries, wild roses, and hellebore; but they appear to yield little honey, probably through being so washed by the rains. Limes are in full blow and yield fairly, as do also the numerous bushes of melilot clover which we took the precaution to establish, but they are neither in sufficient quantity to yield a harvest. This has been sadly disappointing to us, as we had hoped to be able to report from our own apiary the result of a scheme for obtaining pure honey perforce from bar-frame hives, without the bother and expense of supering at all. We are foiled in our wish as regards our own apiary; but foreseeing the probability of such a fate, we imparted our idea to another whose surroundings were different to ours: and here is his report, and we thank him most sincerely for the honourable, kind, and manly way in which he has conducted the experiment, without an attempt to rob us of what little credit may be our due for having thought out the subject.

To Mr. C. N. Abbott.

'Dear Sir,—I am pleased to tell you that your bars are a success, and I will try and send you two or three before going to press with the August number, so as to give you a chance to tell the bee-keeping world what good there is in store for them if they will only put out their hand, and take it.

'J. H.

'*Haverhill, Suffolk, June* 30, 1877.'

It is possible that by supplying honey to the stock with which *we* experimented, we could have achieved successful results, but they might have been delusive, and hence we preferred the other course before making public our new idea. And even now it must be borne in mind that the thing is in its infancy, it has barely been tried, and may not pay in the long run; but if it should be found to answer, as we hope and believe it will, bee-keeping will be revolutionised, since swarming will be brought under control, and supering rendered unnecessary. We do not propose to introduce the new idea with a flourish of trumpets because of one success, any more than we should 'cave in' because of one, or twenty, failures; but as one success proves practicability in a certain degree, we give the idea publicity, and beg of our friends to aid us by trying it in their own hives if opportunity offers.

THE NEW IDEA.

We are rather amused at the way in which we have glided out of the pain of writing about unpleasant weather and ill successes into a subject so congenial to our taste as this promises to be, 'if opportunity offers,' and it must be accepted as a general rule that *without* 'opportunity' nothing can be accomplished. We have on former occasions laid down a general principle involving certain conditions, by which we consider the rules of supering should be governed, *to wit*, 'when it has been ascertained that the hives are well filled with comb, have large and increasing populations, plenty of eggs, brood in all stages of development, and that the ingathering of honey by the bees is in excess of their daily requirements, the last principle involving one other, viz., fine weather.' Without all these conditions co-exist, putting supers on to a hive will often be an injury rather than a benefit, except they are intended as lounging-places for bees that are idle because there is no honey in the fields and orchards to tempt them forth to work.

It is tolerably well known, although often forgotten, that unless there is an incoming of honey no comb can be built, and bees consequently desert their supers even though they may have half filled them, and return to the stock hive; or, though they may remain idle for days in the supers, the first return of the honey season gives them the swarming fever, and in a few days they decamp, leaving the supers tenantless and unfinished to the great disgust of their owners. But, on the other hand, when the weather is fine and the honey yield abundant, plenty of bees, &c., as per 'conditions,' we all know how quickly supers will be filled and the stock hive crammed with honey; and if in the latter, full frames are removed and empty ones substituted, they seem to be filled with combs and sealed out, to use a common expression, 'in no time.' Now it is the fact of the bees' readiness to fill empty frames in the body of their hives that set us thinking, and we concluded that if the queen could be excluded from a frame so placed the bees would first fill it with comb, and finding she did not take possession and charge it with brood, that they would as a matter of course fill it with honey and seal it over. Our *idea* was therefore to make some frames of about the correct width and cover them with perforated zinc of exclusive calibre; and whenever there was a good incoming of the coveted nectar, to slip one or more of them into the brood nest for the bees to fill and seal, and this our honest friend tells us has succeeded. The frames had means provided by which the queen could get round, or through them, but she could not get into them, and the result was, they were quickly filled with honey. Some of them were put into the body of swarms after a few days, and were filled forthwith, and so we congratulate ourselves on the fact that another hill-top has been gained, although being unilluminated by the bright sun of experience it seems misty, leaving one uncertain to what or to where it may lead. Here, therefore, we halt and muse, peering into the haze, and waiting for more light.

Nevertheless, it will, we trust, be pardonable if we give form and expression to the thoughts which arise regarding the proposed innovation.

In the first place, it will give great advantages to those who use the bar-frame hive, as whenever there is a honey-spurt, a comb of pure virgin honey can be almost relied on from every strong colony, since there need be no waiting for bees 'to take to supers;' we say *relied on*, because of the bees' well-known abhorrence of unnecessary vacuities in their hives, and the certainty that they will fill them up if they have *the opportunity*. The strong colony in which *our* trial frame was placed had brood on both sides of the frame during the whole of the month it was in the hive; it had not one of the effects we thought possible, viz., the dividing of the stock into two parts, causing the raising of queen-cells in that in which the queen was absent; so it would appear that the formidable frame and double zinc was no bar to free communication between the court and the people, though it presented an empty chasm dividing them into two masses. Now supposing, instead of keeping our queen *out* of the particular frame in question, she had been put *into* it, at the beginning of the month of scarcity during which it remained in the hive, what would have been the consequence? Would not the bees have clustered with her within her prison and have striven to their utmost to build a comb for her to delight in, and with a little food, just a little, gently and continuously administered, would not a worker comb be surely formed and filled with eggs, we think it would, for in hard times, if bees build at all, they almost invariably build combs of that description, and having built one, why not another, or twenty, if indifferent weather continued, by the same process? And supposing while thus encaged a glut of honey came on, it will be evident that the bees could not swarm *at once* as they often do after a drought, as they would be compelled to wait until a queen was raised, to accompany them. Here, then, is a clue to the prevention of swarming—for if the queen be encaged on—*i.e.* shut up with a moderate number of combs of worker brood, it is certain that no swarm can issue for nine

or ten days; and if once in every such period the enclosed brood-nest is examined, and queen-cells, if any, cut out, swarming can be positively prevented. Correspondence of late has proved complainingly of the perforated zinc with round holes as now used, preventing the passage of pollen-laden bees, but as shown by our enthusiastic correspondent in France, p. 68, that objection can be easily overcome by adopting zinc with elongated holes which will as effectively prevent the passing of drones and queens, yet will admit the bees with their pollen.

But some will say, Drones may be bred in the *pseudo* prison which will not be able to escape; and the answer is, So may queens if allowed by the bee-master, but as it is part of our 'idea' to look for the latter every nine or ten days and destroy them, so will it be easy at the same time to shave off the heads of all drone-cells which may appear, and thus do away with that objection. One more observation; the queen being confined within a certain limit would not be able to deposit eggs outside her contracted domain, but if the bees were to raise queen-cells outside and put eggs in them that became queens, another 'hill-top' would be gained in proving what we honestly believe, viz., that bees do remove eggs for purposes of their own. There are many other issues depending on the correct scientific use of perforated zinc (or other material), and we are sorry that it is only in the power of those who use the moveable comb hives, to take part in any of the experiments concerning the same. The advocates of *Fixism* are shut out of the investigation, as they will be shut out of all participation should the thing succeed. 'In fact,' says an intimate friend, and sometime correspondent, 'if the idea is but moderately successful it will give the death-blow to fixism.' We sincerely hope that a fair trial of the idea will be made in many places. The combs sent were of the purest, perfectly sealed, and without a speck of pollen in them, and having been exhibited at the Caledonian Bee-keepers' Show at Edinburgh, the idea was awarded the Bronze Medal of the Association, as an invention calculated to improve the culture of bees.

COMB FOUNDATIONS.

'Honour to whom honour,' &c., is an excellent motto, and with regard to the preparation of plaster casts from natural comb-foundations the first award is due to 'A Lanarkshire Bee-keeper,' who many years ago prepared some comb, took the casts, made impressed sheets, and used them in his apiary. Prior to this, he, by great perseverance, made some wooden moulds, and used them in casting the sheets, and on our visit to him in 1874 we were shown the originals, which he had used until Messrs. Neighbour and Sons introduced the stereotyped plates now so common, and then the original Lanarkshire casts and moulds were dispensed with, the 'Lanarkshire Bee-keeper' finding that the new plates made better work, and that the bees adopted it more readily than that made from casts of natural comb. Times have now changed, and casts from natural comb are in demand, the plea being in their behalf that natural comb-foundation is sure to be of correct size, while that artificially prepared is not.

It may be part of the economy of a bee-hive (for reasons as yet undiscovered) that the worker-cells are required to be of different sizes, as they most certainly are, in different parts of a hive, and if so there may be a reason for preferring the natural-sized foundations; but when the difference in the sizes of worker-cells is so great as to become a matter of averaging, and the promoter of the movement (Mr. Cheshire) determines for the bees which is the correct one, we may consistently pause, and consider the question in that particular: If it is fair to take an average of combs, why not equally so to take an average of cells? If the cells to be formed were for the living bees, we might suppose that each would, in the former case, be able in the variety of an average comb to find a cell capable of meeting its peculiar requirements; but as we know that comb foundation is for the groundwork of cells which are to be the cradles of future bees, or the storehouses for honey yet to be gathered, we fail to see why machine-made comb-foundation is not equal in all respects to that made by hand. In our opinion, as in that of 'A Lanarkshire Bee-keeper,' it is far superior.

Our object, however, in commencing this article was not to make comparisons between one and the other, but to show those who prefer the natural mould on which to make their cast a mode of preparing a comb for the purpose compared to which all other methods seem clumsy and troublesome.

Having selected the comb, which for obvious reasons should be old and tough, and as flat and even as possible, lay it on a sheet of metal —a small tea-tray will do—and having a wet cloth of several thicknesses (for the sake of coolness), set the tray upon it, and turn over the wet edges of the cloth so that only the comb is exposed, and then *set it in the sunshine on a hot day*. The effect will be that every particle of wax in the upper stratum of the comb will be melted, and will run down into the interstices between the pellicles in the lower stratum, which, being kept cool, will retain them, adding greatly to its strength, and it will be found that, while still warm, the whole of the upper stratum of (now) pellicles only may

be lifted off, leaving a mould for the bases of cells as sharp and clean as on the day when the cells were first used; and if at once removed to a cool place, the mould will set sufficiently hard, firm, and flat, for use with plaster.

It will readily be understood that the pellicles having been severally formed within the cells, each cell will contain a number of them, the first-formed being an exact cast of the cell itself, the others strengthening it. It will further be evident, that if all the wax were drained from the comb, every cell-lining (for the pellicles may be so considered) would stand separate, forming type from which, if sufficiently hard, impressions of the original cell foundations could be obtained, and if, after having been coated with black lead, an electro were taken and mounted, a perfect *fac-simile* of natural comb foundation could be obtained, and multiplied for use for evermore.

REMOVAL OF SUPERS.

During a favourable term for honey-gathering—coming, as in the present year, after a dripping time, during which bees could do no more than keep their populations ready for the harvest that instinct teaches them will come—it not unfrequently happens that, stimulated by the first ingathering of the harvest, the queen will occupy nearly the whole of the stock-hive with eggs and brood, so that the bees are driven into the supers to find means of storage. Remembering that a harvest is seldom of more than three weeks' duration, it will be evident that the stock-hive, being at the beginning of the time full of brood as suggested, will remain so, or nearly so, during the whole of the period, consequently the supers will be rapidly filled, and the stock will be considered an excellent one. But when the supers are removed, which does not usually take place until the harvest is over, what is to become of the bees? They are a full stock, heavy, be it noted—indeed, misleadingly so—but not with honey; and the removal of the supers having deprived them of their store, and the cessation of harvest having cut off their income, they are in a pitiable condition, and but for aid being given would perish. The straw-hivist in such case would heft (or lift) the hive, and being satisfied with *the weight*, would leave it for the winter; but the careful bar-framist would open the hive and examine the combs, ascertaining its exact condition, and giving the food necessary to keep it in good order; and the difference in the result would be, that the one, by the hatching of the heavy brood into bees, would lose its weight, and, if neglected, would starve; while the other, having been examined and cared for as only bees in bar-frame hives can be, will, at the expense of a few pounds of sugar, be put into first-class condition.

The moral of this is, that whenever supers are removed the hives should be examined, to see in what their weight consists. Stocks weighing from forty to fifty pounds when supers are removed, will sometimes be found to weigh less than a third of that weight three weeks afterwards.

ARTIFICIAL SWARMING AND LIGURIANISING.

We are sorry to find, notwithstanding our repeated admonitions, that in making artificial swarms bee-keepers instead, of putting the queen to the swarm, give them a comb of brood from which to raise one for themselves. The consequence is that during the ten or eleven days occupied by that process, the swarm build drone comb-chiefly (if any), and so lose the best part of their life, and render the stock which is formed an unprofitable one. Many endeavour to make artificial swarming the opportunity for Liguriansing, but they try it in the wrong way. The queen of the hive should *always* go with the swarm, and the Ligurian queen should be encaged at once for forty-eight hours, or a queen-cell, should, after the lapse of twenty-four hours, be given to the original stock. Removing a hive in the middle of a fine day and placing another with a Ligurian queen, or queen-cell, only in it, and expecting the returning bees to adopt it and become established, generally results in a dead failure.

END OF HARVEST AND VALUE OF YOUNG BEES.

In most parts of England the honey harvest ends generally in July, but this year it will be later, and will probably extend to the middle of August, after which bees will be able at best to get only a hand-to-mouth living. Should the weather at this particular time be unfavourable, they will not collect sufficient for their daily need, and being obliged to fall back on their stores will discontinue breeding, as they always do (save in the very beginning of spring) when they have no income.

This will have a serious effect on the future welfare of the hives, as, if there is no breeding, there will be no young bees coming forth to take the places of those exhausted with labour, and the colonies will go into winter quarters with their populations half worn out, and, as has been too often proved, incapable of raising sufficient brood in the following spring to keep

up the necessary heat of the hives. As a consequence, small colonies will come to grief just when their owner is expecting them to show renewed life and vigour.

The preventative is gentle, continuous feeding, from the first cessation of the honey yield, *to keep up the income* and induce late breeding, so that a goodly number of *young* bees may be left in the hive when the chills of autumn send them into winter quarters.

ARRANGEMENT OF SHOWS.

The following are fixtures for Bee and Honey Shows for 1877 :—

Aug. 1.—Weston-super-Mare.
„ 7.—Crawley and Ifield, Sussex.
„ 15, 16.—Salop, Shropshire.
„ 16.—West of England, Taunton.
„ 23.—Dorchester, Dorset.
„ 24, 25.—Arbroath.
„ 24, 25.—Blairgowrie.
„ 27.—Wolverhampton.
„ 28.—Odiham.
„ 29.—Sherborne, Dorset.
„ 30.—Lisburn, Ireland.
„ 30, 31, and Sept. 1.—East of Scotland, Dundee.
Sept. 6, 7, 8.—Carlisle.
„ 11.—Grantham.

Secretaries, please forward early intimation of fixtures for coming Shows.

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

(From a Correspondent.)

The Exhibition of the Caledonian Apiarian and Entomological Society at Edinburgh on the 24th, 25th, 26th, and 27th inst., although not a large, was decidedly a successful one. The backwardness of the season, and the early date at which the show was held, are sufficient reasons for the almost dearth of honey exhibits. The supers that were shown were, however, good, although not large. In hives and appliances there was a good display and a close competition.

Significant is the fact that there were no supers of straw exhibited in the honey classes; and in Class 19, for the best straw hive of any description there was only one solitary skep. This speaks volumes for the advancement of our brethren across the Tweed.

In Class 17, for the best and most perfect bar-frame hive with super or set of sectional supers and cover complete, there was no special feature, as the prizetakers are all old friends, and their exhibitors well-known advanced apiarians; but in Class 16, for the best hive for observation purposes, all combs to be visible on both sides, a hive of an entirely new and novel description deservedly obtained the first prize. It is made and exhibited by Mr. Wilson of Newbury, in Berkshire, who is a gentleman evidently possessed of great mechanical ability and inventive power.

There was a large display of wax guide-sheets, all good ; but the best were those made by Mr. Raitt, who has been enterprising enough to send to America for one of Novice's machines.

The prize for the best and largest collection of hives, bee-furniture, bee-gear, &c., was awarded to Messrs. Neighbour and Sons; but why, no one but the judges seemed to know, as the collection of Messrs. Abbott, Bros., was a larger one, and contained none but hives and appliances of the most approved kind.

Although a variety of bee-feeders were shown in Class 24, no prize was awarded by the judges, who were evidently of opinion that there was no improvement sufficiently meritorious to justify them in doing so.

In Class 25 Mr. Hooker took the prize with a marvel of cheapness—28 sections enclosed in a case and protected by a zinc-adapter for 7*s.* 6*d.*

Nothing very new in Extractors was shown. The 'Little Wonder' of Abbott Bros. was placed first in order of merit, but having taken the Society's prize in 1876 was debarred from doing so again.

In Class 27, for any new invention calculated, in the opinion of the judges, to advance the culture of bees, was exhibited a method of obtaining sections of pure virgin honey from the centre of a hive which, if it prove as successful, as the first experiments lead one to suppose it will, is almost certain to entirely revolutionise the present system of honey-getting. The world of bee-keepers is indebted to Mr. C. N. Abbott for this new idea, and the judges awarded him the highest prize within their power.

One other award in this class was well earned by an ingeniously constructed bee-trap, price 6*d.*, the invention of one of the Abbott Bros.

Classes 28, 29, and 30, failed to produce any competition ; and class 31 only one exhibit, which the judges passed over as unworthy of award.

Class 32 produced a case each of wax-flowers and fruit, the beauty of which must be seen to be appreciated ; they were simply perfection.

The arrangements were good and reflect credit upon the Secretary of the Association, R. J. Bennett, Esq., upon whose shoulders seemed to fall all the burden, but who proved himself equal to the occasion.

We were sorry to see on the Monday preceding the Show two large placards announcing to all that the booth erected by the Society contained 'Neighbour's Working-bees' and 'Neighbour's Exhibition of Hives and Appliances;' and although taken inside before the Show was opened they were there placed in such a position as to include one whole range of benches, upon which were staged at least 15 or 20 exhibits, not the property of Messrs. Neighbour and Sons, but which the outside public, misled by the placards, would imagine were so.

It is a pity that these Shows are made quite so much a medium for advertising, and we hope to see it discontinued.

THE DORSETSHIRE SHOWS.

The Dorsetshire Bee and Honey Shows are to be held this month : the first at Dorchester, on Thursday, the 23rd, and the second at Sherborne, on Wednesday, the 29th. Those who have hives, honey, &c., to exhibit, will do well to obtain a prize-list from the Secretary, Mr. C. E. Norton, Shaftesbury.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

At a Special Committee Meeting of the above Association, held on the 27th July, it was unanimously decided, That, owing to the unexceptionally bad honey season, the Bee and Honey Exhibition which was intended to have been held at the end of August be given up; and it is with regret they are therefore compelled to relinquish the idea of holding a Show this year.—Wm. N. Griffin, *Hon. Sec.*

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.

This Society had a most successful gathering on Wednesday, July 11, in the grounds of the Vicar of Ealing—Rev. E. W. Relton. As prizes had been offered by Harcourt Turner, Esq., for jars or pots of 'honey as deposited by the bees,' the apiarians of the locality took advantage of the opportunity, and did their best to bring to the front the merits of the honey-bee. We extract from the local paper the following account:—

'The most attractive feature to the general observer in this tent was the exhibition of honey. In this class Mr. Kenworthy took the first prize, Mr. J. Hunter the second, and Mr. F. Grover the third. The first prize was a splendid super of honey weighing 36 lbs.; as such honeycomb is worth wholesale about 1s. 6d. per lb., the bees well earn the small amount of attention and protection necessary for their welfare. The second and third prizes were bell glasses well filled with honeycomb of exceedingly fine quality, more especially the second prize glass, exhibited by Mr. Hunter, the nett contents of which weighed 10½ lbs. Mr. Hunter also exhibited, not for competition, two fine supers of bright golden-coloured honeycomb, produced by the bees from sainfoin, and also two sectional supers, illustrating the American method of raising the most marketable boney. Each of these little sections was filled by the bees with about 2½ lbs. of comb, and was intended to be sold whole, thus avoiding the waste always resulting from dividing heavy combs. The centre of attraction in this class was an observatory hive of living bees and their queen, also exhibited by Mr. Hunter. This was most interesting, and many persons made the acquaintance of the Queen of the Bees who scarcely before believed in her existence.'

LISBURN (IRELAND) HORTICULTURAL SOCIETY.

The following prizes for honey, &c., will be given at the forthcoming Show, to be held in the Castle Gardens, Lisburn, on Thursday, August 30th, 1877.

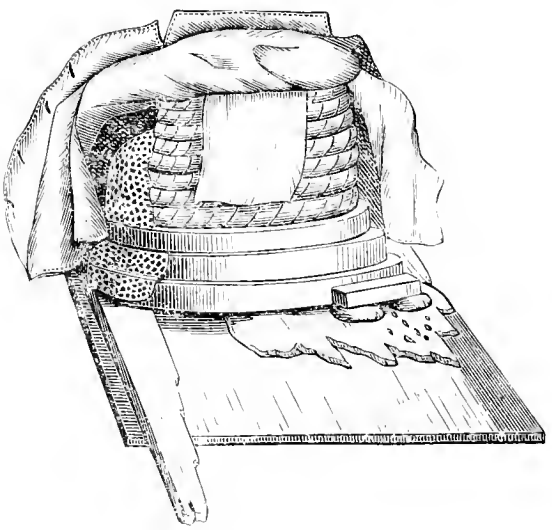
No.	Section 7.—Honey.	1st Prize.	2nd Prize.
199.	Best and heaviest Skep, wood or straw	10s.	5s.
200.	„ „ Super, „ „	10s.	5s.
201.	„ „ „ Bell glass ..	10s.	5s.
202.	„ Observatory Hive, stocked with bees working	10s.	5s.

Every competitor must be a subscriber. No fee charged to exhibitors. Schedules, entry forms, and every information, may be had from

Alex. Boyd, Esq.,
W. D. Pounder, Clerk, } *Hon. Secs.*

The bees are a bizzy people; rather than be idle they will rob each other ov their hunny. Hornets have more fight in them than enny thing ov their size, but there iz no method in their madness; they will pitch into a meeting-house when they are furious, just as anxious az they will into a sleeping baby in its kradle.—Josh Billings.

AN ANTIQUE HIVE.



THE ANCIENT STYLE OF HUMANE BEE-KEEPING—PATENT NADIRS AND SUPERS.—*Patton's Patent.*

The above is a sketch of the hive (?) which has taught a few of us a lesson. It stands in the same position it has occupied for the last fourteen years, and has been three times eked by its careful owner. Two of the ekes are barrow-wheels with the spokes driven out; the third is the iron rim of another wheel. Neither of these ekes fits the other by an inch or more, leaving open spaces of that size at various sides. The structure stands on part of an old floor-board almost entirely rotten away, so that the hand can be passed under it, and this again is propped up by part of a modern door. The supers consist of various pieces of rotten sacks, with the owner's cast-off coat over all. Under these ancient supers the bees have built some nice comb, and they seem rather to like their kindly shade, for they cluster beneath them in large numbers. After all our coddling, this rare old skep, with its accompaniments, teaches us a lesson, for until this season it has regularly thrown its tops and after-swarms. Its owner counts his wealth in swarms not honey. At present it is 'rich in bees,' and bids fair to swarm yet. 'Give bees plenty of air,' says our friend. *His* bar-frame hives come all right through the winter with the four-inch holes in their wooden tops open to the weather. No quilts are needed on this system. He thinks he will try quilts, however, for he finds that swarms put into Cottager's bar-frames of modern pattern, without anything to cover the frames, will be stupid enough to go up and build in the roof.—Wm. Raitt, *Liff by Dundee, July 19th.*

The Tongue of Bees.—The great instrument by which the bees collect their food is their tongue. This they have the power of inflating, and can wipe with it both convex and concave surfaces, and with it they, as it were, *lick*, but not *suck*, the honey from the blossoms, for Réaumur has proved this organ acts as a tongue, and not as a pump.—Kirby.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

COMB FOUNDATIONS.

Amid the miseries of a poor season with myriads of starving bees, dozens of half-filled supers, and little prospect of anything better, it is pleasant for me to be able to write of the unqualified success of the comb-foundations. I have not heard a single complaint regarding the 600 or more sheets I have sent out. For swarms they are only too great a success, as comb-building goes on faster than the most prolific queen can possibly follow with eggs. The consequence is that in strips along the bottom drone-comb is built. And here is an idea. Give bees a very prolific queen and they will ordinarily build no drone-comb; they will only do so when they get a-head of her, unless in preparing for swarming when they in any circumstances build drone-comb if they can. I argue that as swarms with queens of the present year build little drone-comb, it must be because of their greater fruitfulness, therefore let us have young queens if possible. In such a season as this to have swarms that have filled their hive and done as much besides in supers as some non-swarmers have done, is well worth the price of a pound of foundation. One splendid swarm filled every frame with comb in five days, and went up to a super the day after. The queen lays regularly in it (the comb) up to the very bar and from side to side. My only regret is that my machine was not larger, so that by giving sheets of the full depth of the frame I could avoid these occasional strips of drone-comb.

For supers nothing can beat it. One great recommendation I have only lately discovered. There are often a few dozen of stragglers wandering about supers for days before the cluster goes up. It is a pleasure to find that these stragglers will, if there is warmth enough, set to work, even individual bees, and dig and build away till the sheets are in great part extended and quite ready for honey before the cluster goes up. How much better than to have to wait on the secretion of wax for twenty-four hours after they go up, and even then have the work proceeding much slower. In both hive and supers the foundations save time by at least one half; they conserve the vital energies of the bees, and consequently lengthen their lives, and they set free for honey-gathering nearly all the clustering wax producers. These are advantages additional to those of having only straight worker-comb in every frame.

In consequence of my remarks last month, I have had several inquiries regarding the machine; and as others may be curious to know, I may state that it was supplied to me by A. J. Root, Medina, O., U. S. It cost me originally 6*l.*, but freight and the necessary dipping cans, &c. brought up the bill to 8*l.* 13*s.* The best plan for many would be to import the foundations ready made. If a number would unite in getting 100 lbs. or so, it could be divided out at very little more than the price (2*s.* 6*d.*) I am at present paying for wax. As I have had such difficulty in getting wax I have been compelled to charge 5*s.* per pound besides packing, but I hope to be able to supply a quantity for next season at a lower price. I have no intention of trading, but wish to assist in introducing what I consider the grand invention of the day among bee-keepers.—William Raitt, *Liff-by-Dundee, July* 16.

I agree most heartily with J. Raitt in your last number with the value of any invention which will give the bee-keeper straight worker comb, but with the experience I have had with the brush and plaster cast, I entirely differ from his conclusions.

In the first place, anyone with ordinary intelligence can manage to make the sheets from the plaster mould after spoiling two or three sheets; afterwards, I should say one spoilt sheet to a dozen good ones would be as many as one would get, and these, be it remembered, can be made by the amateur whenever he is in need of them, and with the certainty of being the right size because the mould has been taken from natural comb; whereas with the foundations Mr. Raitt advocates amateurs must buy the foundations of some one who has a machine, and when he has obtained them, he has nearly as much trouble to fix them to the top bar, as he would have in making the foundations from the casts which are fixed to the top bar under the one operation; moreover, the foundations Mr. Raitt advocates cannot be so true, I should say, as natural comb. The few combs I have made from casts Mr. Cheshire courteously supplied me with are straight, white, and full of brood from bottom to top; in fact, I am as satisfied with my plaster casts as he is with his machine; and for my own use would not change them for the machine, which I suppose cost him fifty times as much as mine.

Of course the tallow and shot I have nothing to say about, I am supposing the amateur has obtained the casts as I did.—Alfred J. Clarke, *St. Ebbe's.*

SWARMING-PLACES.

I should very much like to know whether it ever happens that bees, before swarming, seek out a place to go to. I have often heard it stated that they do, but could never see any good reason for thinking it was so. The queen, I suppose, generally leads, and it is not very probable that she ever leaves the hive in quest of her future place of abode. Then, again, supposing that duty was intrusted to worker-bees, could they lead her majesty to the chosen spot? After looking upon it from all sides I see no good argument in favour of supposing it ever to be done. Yet I have a case in my own apiary this spring that might be taken by many as a good argument in support of such a theory. I myself cannot see how a swarm of bees could find their way into the place

they did without some previous knowledge of the road. I have a bar-frame hive in which the bees all died in the winter. I always cut the passage out of the floor-board, and when I found the bees were dead I turned it upside down, and placed the hive on it to close it up, so that no snails or insects could get into it. Wanting the stand for some purpose I placed the hive on some bricks, which raised it only about 2 inches from the ground, and it then stood about a foot from a thick box-hedge, 8 feet high, and between two currant-bushes. The other day, on going for the hive, I was agreeably surprised to find it tenanted with a very good number of bees, and several pieces of new comb built. The hive had by some means got moved a little towards the hedge, leaving an opening at the back, where it projected over the floor-board, of about a quarter of an inch in width. The bees were working through it, and had to go down between the back of the hive and the hedge, almost on to the ground, to get in. The hive was covered with old sacking, which reached nearly to the ground, and that with the currant-bushes made the entrance very difficult to find. Of course, I very soon altered matters a little for them, and gave them a respectable 'entrance out.'

I had a swarm settle round the trunk of a small tree. They covered it all round for about a yard and a half up. I could not get to shake them into a hive, so I put one, by way of experiment, on to the top of the tree and covered all over with a cloth. They began to ascend directly, and in a few hours after, when I removed the hive, the bees all came away with it, although the hive was full of the branches which supported it.—Geo. Hailes.

NO ACCOUNTING FOR TASTE.

I have just been told as a fact that a Frederick Hatt, residing at Corsham, had a swarm of bees the last week in June; the bees went direct to the pigstye and alighted on the pig, who, not liking such ticklish visitors, commenced scampering about making a great noise, and drew Mrs. Hatt's attention. The old lady on seeing the bees on piggy's back was very much puzzled to know how to get rid of them; her first idea was to drive the pig through the potatoes, but that not answering she very foolishly resorted to the broom, and commenced brushing them off; not succeeding, they had to send for a practical bee-keeper (one of the old school) who succeeded in getting rid of the intruders.

The poor old lady was so badly stung that she was obliged to go to bed. The pig was well rubbed with the blue bag. He is now recovering, but for some time they had no hope of his recovery. The bees went back to the parent hive: the queen, I have no doubt, in her bad choice, got killed with the broom.—R. M., *Corsham.*

RETROSPECT OF THE SEASON.

Well, the third week in July has passed. Meadows are mown, the principal honey harvest is over (such is my experience after twelve years' residence here), and a very, very poor season it has turned out. My stock of bees consists of—1 and 2, Payne's Improved Cottage Hives; 3, Nutt's Collateral Hive; 4, Collateral Hive; 5 and 6, Mr. Carr's Hive of Hives. I made artificial swarms on 5th June from 1 and 2 and put them in 5 and 6. The only stock that has collected surplus honey, strange to say, is 3, about 12 to 14 lbs. since 16th June.

A friend who commenced bee-keeping last season, and secured a large quantity of honey, has this season only one glass, 10 to 12 lbs., and a small super from a stock of five hives and two swarms. My old friend 'Robert de Hermit' *will not be prevailed on to alter his system. Old plan, natural swarms and brimstone pit*, but complains that from twenty-five hives strong stocks in April, he has only eleven new swarms and one cast. I explained to him on Thursday last the system, artificial swarming, feeding and slinging honey, &c., &c., from your 'Leaflets.' His reply, 'All gammon and bosh!' I wish him to allow me to drive his bees in August instead of the sulphur pit, and hope I may succeed—I do not mind the trouble—although at the distance of ten miles. Last season a prosperous one, honey abundant, the exhibition of honey, bee-furniture, &c., at Grantham a great success, induced several amateurs to commence bee-keeping, and old bee-masters to begin again. I regret this season has been so very poor: it has damped the ardour of many in this district, say ten miles round this town. I have heard many complaints of bees not swarming naturally, and many instances of bees returning to the parent stock after swarming. I am quite confident that a greater part of swarms hived this season will require feeding to get next winter and spring over. I hope other bee-masters will contribute to the *British Bee Journal* a few lines of success or failure this season.

This district is agricultural, with gardens, orchards, and thickly studded with lime, plane, oak, ash, horse-chestnut, a few willows, &c., and a largish track of meadow and grazing land.—Thos. Hy. Bouttell, *Sleaford, July* 23.

PERFORATED ZINC.

In two places in your July number your correspondents speak of perforated zinc adapters as rubbing the pollen off the bees' legs (pp. 53 and 54). I would observe that we use perforated zinc with oblong holes measuring ·165 = $\frac{1}{6}$th of an inch high, by ·495 = nearly $\frac{1}{2}$ an inch wide. With these oblong holes the bees very rarely or never lose their loads of pollen, whereas the drones and the queen are unable to pass, and are as effectually excluded as they would be by square holes. I had gratings at the doors of all my hives this spring, and never saw any bees lose their loads on entering.

As you observe, p. 59, your correspondent from Epsom should have put bottom boards to his supers, but I do not see why he should not detach them if they adhere to the crown-boards of the hives by passing a thin wire between.*

* A thread or wire tears the cells at the bottom of super combs, causing them to bleed, and thus lose both weight and finish, and cannot be recommended.—Ed. *B. B. J.*

In reference to the plan of imprisoning the queen to get super honey, I have been asked, if the queen is shut up in the super whether she will not lay there in the combs which the bees build. In reply I would explain that she will to a certain extent do so; but as she must in no case be confined in the super for more than ten or twelve days, she will return to continue her laying in the hive as soon as she is released, and the cells in the super will be used for storing honey as soon as ever the young brood is hatched out of them, while storing will have gone on all the time in part of the cells. The bees, as you know, will always use the upper division of the hive for storing honey first: and by removing the top, you make the super the upper part of the hive—you confine the queen there in the first instance, in order to force the bees to build there. I need not add that it is worse than useless to attempt to get honey in this way with a weak hive.*

I purpose sending one of my hives to the Grantham Exhibition, not because I think it a marvel, but simply to show a good, useful cheap hive.—G. F. Pearson, *Nancy, July 13th*, 1877.

BEES DESERTING SUPERS.

As I have suffered from the same trouble as the writer of Query 213 in the last number of your *Journal*, viz. by my bees deserting a box super, a bell glass, and a couple of your sectional supers (all on the same hive), after commencing to work and collect honey in them, I write to add my testimony to the desirability of ventilating the subject.

Was the reason this?

That there was not sufficient super room for the probable early requirements of the hive, and that seeing this difficulty in the early future the bees did the wiser thing from their point of view, and swarmed. Or was it from want of sufficient ventilation in the hive and supers?

I incline to think that the former reason was the right one, and that by judiciously accommodating the super space to the strength and requirements of the stock hive that this difficulty may be overcome. A space of a few cubic inches more super room would, I believe, have prevented them swarming.

Another stock which stood next to the one above mentioned in the same shed, which was even stronger and not so well ventilated, did not swarm. It had a large box super, on which I have just taken (30th June) containing thirty pounds of honey. Another point suggests itself, whether bees do not prefer and and are less likely to swarm when they have one large space to cluster and work in than when they are given several smaller receptacles. Of course, we know that one large super is not so convenient or valuable as several smaller ones, but it seems to me that the idea of the sectional supers (to my mind an admirable one) gets over this drawback, as the bees can cluster in any sized mass if you only give them sections enough, and the supers are still available for use for honey in small quantities. Have any of your correspondents tried these sectional supers practically? If so I wish they would give me their experiences with them. I incline to think it might be rather awkward to take the sections separately, but not having tested them I am not in a position to judge.

Quilts.—Do you advise using them in summer as well as winter? Which is the proper side to place next to the hive—the soft felted or the corded side of the carpet? My first experience with a quilt was with a piece of carpet, the corded side placed directly on the hive which the bees so propolised that it was with great difficulty that we could get it off in order to place supers on it. This has made me shy of trying the quilt again, but I have one of your standard hives in which I have placed a good swarm, and I am thinking of putting on a quilt if desirable instead of the adapting board.—Arthur T. Webb, *Kenley, July 4*.

[Quilts.—We use quilts during all the year except when supers are on the hives, when they are removed, and (all our bars being flush with the sides of the hives), the sections are placed directly upon them. If of carpet the corded side of the quilts should be close to the frames. If placed *close down*, the bees can only propolise the edges, and then it will peel off like a piece of plaster. First experiences should never be trusted, as the experiments leading to them are often faultily conducted—the effect, instead of causing the condemnation of a principle generally accepted as the best known, should lead to further experiment to find out how to mitigate the evils experienced. If a pliable carpet was so difficult to remove what would have been the effect if instead a wooden crown board had been on the hive which must have been wrenched off *at once?* Would not every frame have been lifted out of its place with a general jarring, and the bees have risen in a cloud to attack their invader? Adapting-boards *will* warp and twist if of all wood, whether in one piece, or several.—Ed.]

BEE LAW.

I have had a disappointment which does not often happen to bee-keepers. It may be interesting to you to know the details, and I shall be glad to know how the law stands on the subject of the possession of bee swarms. On Thursday evening last a man who is a sort of gardener and florist came to my house to see me and left no message, but came again on the following morning to say that a swarm had settled in the hedge of his garden on the previous day; and as I had mentioned the subject of bees, and that I wished to keep them again, he came to me, knowing of no one else who was interested in them or kept them.

Having no hive I took a box and placed it on a kale pot while I cut away part of the hedge. My bee-dress being very old, although I had it in my possession at home, was of no use, so that I had to be careful as the bees were in the centre of the hedge. I knocked them into the box as well as I could and turned the box over on to a foot-board. A lot were still in the hedge, and looking at a lump I saw that they had made some comb; this I got off by cutting away the thick branch and dropping it in front of the box. Having to go to business I left in a hurry till the evening; on my return I found they had left

* This plan renders it necessary for the super to remain on the hive for from thirty to thirty-six days, that all the brood may hatch out, and the fact of brood having been in the supers disqualifies it in competitions.—Ed. *B. B. J.*

the box and gone into the kale pot which stood upright. Thinking they did not like the box I went a mile across the town and tried to buy a straw hive but could not obtain one, the only shop where they are sold (Pettigrew's pattern) was shut up, so I bought a starch box at a grocer's, cut an entrance hole near the top by the lid, and tied the lid down, put this against the kale pot and upset it against the wide entrance to the box.

I telegraphed to my father previously on Friday afternoon to send me an old bar-frame hive of mine from Willesden. On Saturday morning they had again got into the kale pot. I apologised to the gardener and his partner, and told them that I would give them five shillings for their trouble in letting me know, if I hived them safely, at which they were both pleased.

On Saturday afternoon I had my bee dress repaired and the bar-frame arrived. This I carried down to the garden about a quarter of a mile with the assistance of my son, and donning the bee dress, set the bar hive without foot-board on some stones, and brushed most of the bees into it. On Sunday many of the bees had clustered outside, but I thought if a shower came they would soon go in. On Monday morning—this morning—I was not as early as usual; the garden gate being locked I did not go in, but I saw that the roof of my hive had been removed and a straw hive put on. Thinking this was a neighbourly act on the part of some one, and the gate being locked, I went off to business, although I wished the straw hive at any place but there.

This evening, Monday, I returned from business, and found a concourse in the garden, the slide of the feeding-hole had been removed, and the bees had gone through my hive to the straw one, most likely having been driven by a heavy shower which lasted all the afternoon, and would from the removal of the roof have entered the frame hive. I also found there the owner of the straw hive, who was a man from the south of Stockport, about a mile and a half distant across the town, as I was informed, formerly the constable of Stockport, who now claimed them as his, having, as he said, lost a swarm last week.

These bees were said to have come from the north-east by those who saw them. I stated that I felt aggrieved at their being taken from my hive, and would pay him what was a reasonable price for them, considering the trouble I had had, although I did not acknowledge his right to them, as I believed that to be his he must not have lost sight of them, or they must by some person or persons have been seen to come from his hives and pitch in the hedge. He asked me 15*s.*; this I said was an exorbitant sum, as he had had no trouble to get them, but merely brought his hive, and broke into the garden or got over the fence without permission of the owner, and took them off my sheet and out of my hive. I told him if he would reduce the amount I would consider it; otherwise he would have to pay the gardener what I had promised, and pay me for the cost of the carriage of my bee-box and for the time I had spent upon it. He then took from his pocket a sheet, lifted the hive off mine, and said I might summon him and he would stand by the consequences, then took them away, and that I could not claim them as my bees, for having none here of my own they could not be mine. May I ask you what is the law in regard to stray swarms? I might mention that I had put a feeding-cup of syrup upon my bee-box and a bell-glass over it; these had been removed.—V. J. *near Stockport.*

[A law advocate of more than thirty years' standing gave as the *Law on Bees*, p. 79, Vol. IV. *B. B. J.*, 'that by one of the laws of Alfred the Great all bee-keepers were bound to ring a bell when their bees were swarming to give notice to their neighbours of the fact, hence the origin of the tin-can music (now, often) employed on such occasions: A swarm of bees is the *property* of its original owner so long as he can keep it *in sight*, afterwards it becomes the property of the first person who secures it. No man can swear to bees: with lost identification the property ceases and becomes in common—so more than one county court judge has decided.'

It is therefore clear that the Stockport claimant had no right in the bees, he having lost sight of them for nearly a week; it is equally clear that he committed an illegal act in taking them as he did against your expressed wish, they having become your property by gift or otherwise of the finder, on whose holding they had alighted.

You have a remedy in the county court for their value, and the finder can claim for any damage done by the 'claimant' when illegally removing them.—Ed. *B. B. J.*]

TOADS IN THE GARDEN.

'The fact that toads do eat bees would seem to be proved—in spite of the numerous assertions to the contrary—by the recent observations of M. Brunet in France. He saw a single toad in his garden devour twelve honey-bees in rapid succession. The bees were voraciously snapped off the blades of grass on which they had alighted. Upon being removed from the spot which the bees frequented, the toad repeatedly returned to it and recommenced his attack upon the insects.'

[Note.—A correspondent sent the above, with a query—Can it be possible? And in reply we beg to say that we have this day observed a toad playing a similar game; but thinking that the quickness of the tongue, like a lightning flash, might have deceived our eyes, we despatched poor Toady by sending a prong through his jewelled head, and a post-mortem examination discovered some ten or twelve perfect Ligurian bees in its stomach.—Ed. *B. B. J.*]

VALUE OF DRONES.

I am glad that the drone subject has been brought before us again by 'Outsider,' and I hope to see it brought to a decided issue; but there is one thing I cannot understand, this cutting out of drone-comb to try and prevent the queen from laying drone-eggs, which to do is not good for the prosperity of the hive, as from the study of the law of hiving, I find that the queens on the average lay from thirty to forty thousand workers' eggs before they lay drone eggs; but it is not good to have their drone comb in the brood nest or centre of the hive, as they greatly retard the prosperity of the hive. I have tried repeated experiments with hives of this class, and find it puts them two and three weeks behind their compeers of the former year. The combs should be cut out at once and worker comb put in both for the profit of the bee-keeper and the prosperity of the

hive. If I go in to experience and observations on queens who lay three thousand drones and those who lay seven thousand, I have always found that the latter queens are all that a bee-keeper could desire to propagate bees with; they are more fertile and produce about double the number of workers, which produces double the quantity of honey more than those hives with the smaller number of drones. I have written this letter in the expectation that some one will tell us how much more honey we will get by trapping the drones and killing them before their appointed time, or what benefit we are to get by so doing. Bonner, when his drones made their first appearance, made that day a day of feasting and rejoicing for himself and his household; and I say, Touch not the drones, for the prosperity of the hive depends upon them.—JOHN ARMSTRONG, *South Alloa, Stirlingshire.*

A SUGGESTION FOR MANAGING A SMALL APIARY.

When I had mastered the rudiments of bee-keeping, the want that presented itself most strongly was that of a system. Having established an apiary of eighteen stocks, being as many as I cared to keep, my aim was to maintain that number, and get all the honey I could. Books told me I could super some hives, nadir some, set aside some for swarming, or again, double some and use the extractor; but which I was to super, which to set aside for swarming, and which to double, I could find no systematic instructions which would tell me. Moreover, my apiary having grown up by degrees, contained, as is usual, variously shaped hives, taking various frames. There were, however, twelve hives exactly alike, and the following plan seemed to commend itself most.

As soon as the hives were forward enough in the spring, *i. e.*, full of bees and brood—having ready six hives of the same pattern as the twelve above mentioned, only without roofs or floor-boards, being, in fact, merely frame-boxes; to remove from each of six of the above twelve hives the combs only, free of bees, supplying their places with empty frames, and to place the six sets of frames full of comb and brood thus obtained in the frame-boxes, setting each above one of the remaining six similar hives, with a piece of perforated zinc between, having first carefully excised all queen-cells, both from the upper and lower hives. I should thus obtain six strong artificial swarms, which would provide for themselves, and in favourable seasons would even yield supers, and six doubled hives from which to extract as often as might be necessary, while the remaining six hives of various shapes would be supered, or swarms would be obtained from them to fill any gaps. At the end of the season the upper hives would be removed from the doubled ones, and carefully preserved until the following spring, when on making the six artificial swarms, there would be a set of combs for each, while any excess of drone-comb, if excised, would probably be replaced with worker-comb.

It seems to me that with six hives to fall back upon for strengthening and swarming, I could always depend upon keeping my twelve stocks in good case, and that the plan presents a methodical and desirable system of management. Few private apiaries contain only one kind of hive, while in most some one kind preponderates; and, of course, any two hives can be worked upon this plan, by having a box of similar internal size to the hives, to hold the frames of brood when the doubling is done, and a spare set of frames to replace those removed. If preferred, the frame-box can be made with double glass sides.

Any swarms not wanted to fill gaps can be returned to the parent stock or given to strengthen any other, or old queens can be replaced and stocks at the same time strengthened by destroying the old queen, and adding a cast or a swarm headed by a young queen to the deprived hive; and my limited experience is, that doubled hives, if the extractor be kept freely at work and queen-cells excised when the doubling is done, are not so apt to swarm as supered hives. Bees will collect and store honey in weather when they will not or cannot make comb; and if there are always empty cells ready to receive it, and plenty of combs for the bees to cluster on, it may well be that the effect is to take away the sense of overcrowding and overheating, which seems antecedent to, if not in itself the cause of, swarming. One point in using the extractor seems to be to use it often enough, and thus avoid the trouble of uncapping sealed cells; probably once a-week would be found sufficient.

Here we have had a cold backward spring, then a good flow of honey up to June 21, and since then a cessation. Bees in my apiary are in large numbers, clustering in masses between the hives and loose outer cases, even where two fair-sized supers are on and full of bees, but no honey is coming in, and some is even being removed from supers, while drones have been freely killed during the last fortnight.—H. JENNER FUST, Jun., *Hill, Gloucestershire, July* 20.

UNDUE SWARMING—SUPERABUNDANCE OF DRONES—LAUREL AS BEE PLANT.

Is it one of the effects of this very peculiar season that the bees will insist on swarming, despite large unfilled supers being on? My bees annoy me very much in that respect: no sooner am I settled down to work than the message comes in, 'Please, sir, the bees are swarming!' I have just hived a very large swarm from a hive having a large uncompleted super. I opened the hive and cut out *eleven* queen-cells, and shall sling the combs this afternoon and return the swarm, thereby giving them something else to think of besides colonising. Out of several hives I have cut six and seven queen-cells.

There seems also to be an unusual amount of drones. This seems to me to be accounted for by the slow ingathering of honey. Combs which in ordinary years would have been stored with honey early, being empty, have invited the queen to deposit eggs. The drone-trap is in great requisition. When, however, I open a hive and find a large quantity of sealed drone-brood, I shave it with a bent knife, thereby decapitating the brood, which is speedily thrown out, after being sucked dry.

I very much fear that our first show of the Shropshire Bee-keepers' Association in August will be

sadly deficient in honey—the weather is so sadly unpropitious.

A word about bees gathering honey from laurel-leaves. I have known of their doing so for very many years, as we have a very great quantity about here. I am convinced it is not a secretion made by any insect, but natural to the plant, contained in four glands near the base of the leaf; occasionally there are six, but four is the most usual. I never found one leaf free from them, though I have examined a very great number, and they are always in the same place, and observable in all stages of leaf development. Should you wish to examine them, I would send you any quantity, but doubtless you can get them nearer home. The glands are not to be found on Portugal laurel, but only on the bay laurel.

I should be glad to know whether other bee-keepers are annoyed by their bees swarming more frequently and persistently this season than is usually the case.—RAVEN.

A PONY STUNG TO DEATH BY BEES.

On Friday, the 13th ult. a pony belonging to Mr. Goldsmith of Whepstead, Suffolk, was put into a paddock where he was able to upset a hive of bees, and, like the bear in the fable, he soon had cause to regret it, for the bees attacked him in an unmerciful way. Then followed the usual consequences, the bees became entangled in the pony's hair, and emitting their poison (equivalent to a bugle war-note), the air became filled with its odour, and the bees of other stocks quickly took part against their supposed common enemy and killed him.

The pony, it appears, was a black one, but the stings were so numerous that he became buff-coloured. If an inquest were held, the verdict should be, Died through folly of the owner.

A HONEY-BEE PARABLE.

As bees to some fair solitude
Wing their swift way in search of food,
But straight return, and zealous strive
To swell the treasures of the hive:
Thus do thou, man of God! Repair
To solitude—to mountains, where
The holy breaths of Heaven are rushing—
Or to the darksome forest, hushing
The heart with awe ecstatic; there
Diffuse thy very self in prayer.
Then, fed with beauty from above,
Proceed thou, fraught with hope and love,
To share the tainted ugliness
Of peopled haunts, where myriads press
On worldly work, or soft reclining,
Hell-fettered, know not they are pining;
Feed their starved souls with Eden sweetness—
Unmeasured got, but given with meetness.
So shall thy spirit lighted be
From lovely lamps of Sympathy.

He who would feast the multitude
Must first win wealth of heavenly food:
Heaven's food devoured, and not imparted,
Makes the lone feaster sorry-hearted.

From *The Meda Maiden and other Poems*, by the EARL OF SOUTHESK.—Communicated by H. JENNER FUST, Jr.

BRITISH BEE-KEEPERS' ASSOCIATION.

At a Committee meeting held at No. 15 Beaufort Buildings, Strand, on Monday, 9th July, 1877. Present, Mr. Walker (in the chair), and Messrs. Cowan, Henderson, Hooker, Hunter, Minson, and Fox Kenworthy (Hon. Sec.)

The minutes of the previous meeting were read and confirmed.

It was resolved that the draft prize schedule dealing with the Society's medals at the Taunton and Weston-super-Mare shows as now submitted be approved of.

The Hon. Sec. reported that an allotment of space at the Paris Universal Exhibition of 1878 was offered to the Association by the Commissioners; and it was resolved that the same be accepted with a view to the convenience of members of the Association who might wish to exhibit.

In accordance with a resolution of the Committee at their last meeting, the Secretary presented the following report:—

'At the desire of the acting Committee, as expressed in their minute of 28th June last, I have the honour to lay before them the following summary of the work done by the Association up to the present time, and of that contemplated during the ensuing season.

'The Association took its origin from the suggestion of an anonymous writer in the *British Bee Journal*, May, 1873, who therein advocated the establishment of a bee-keepers' guild. Many such societies were then in existence on the Continents of Europe and America, and it appeared highly desirable that Great Britain should also have similar institutions. The idea being grasped by a few leading bee-masters resulted in a meeting being called, and on the 16th of May, 1874, was formed the British Bee-Keepers' Association. Prior to that date arrangements had been made for a bee and honey show at the Crystal Palace, the conclusion and carrying out of which were at once transferred to the newly formed Association, to which Mr. John Hunter was appointed Honorary Secretary. The gentlemen present at the above-mentioned meeting may justly be styled the founders of the Association; and upon the Committee and officers appointed by them devolved the onerous task of establishing the institution on a firm basis, and successfully carrying out an exhibition of novel aspect such as had never before been attempted in England.

'Bee-keeping here has made very little progress for many years, and although Mr. Woodbury and others had done much to make frame-hives known, the information had generally only come to the knowledge of the wealthier classes,—agricultural labourers and cottagers as a rule being yet in entire ignorance of beehives other than the old straw skep, or still ruder rough wooden box, in which the bees were, as a matter of course, stifled when their stores were to be taken, the simple operation of driving not having been heard of or its possibility believed in.

'The first exhibition of the Association was held at the Crystal Palace, September 8th, 9th, and 10th, 1874, and was an undoubted success; bee-keepers flocked to it from all parts of England and Scotland,—the tables were loaded with the finest collection of super-honey that had ever been brought together,—the skill of hive-makers, both professional and amateur, was brought into competition, resulting in the introduction of a vast number of new pattern hives and appliances,—the operations of driving and honey-extracting, and the use of frame-hives generally, were practically shown and explained. Bee-masters known to each other by their writings only, were for the first time brought together on common ground, and new friendships were made and old ones renewed. The press gave long and graphic reports of the show and manipulations, which attracted upwards of 25,000 of the general public, the financial result giving satisfaction to the Crystal Palace Company. At the close of the first year the members numbered 165, and the Committee, feeling it imperative on them to make the Association and its objects more generally known, addressed 16,000 circulars to the country clergy. This brought in many new members, and the number at the close of the second year had increased to 290.

'By the kind permission of the Linnean Society, a Con-

versazione was held May 5th, 1875, at Burlington House, which proved a pleasant re-union for the members and friends.

'The second exhibition, held at the Crystal Palace, Sept. 21st, 22nd, and 23rd, 1875, was in no way inferior to the previous one, and was well attended by those interested in this special study; but through the unfavourable weather and from other causes beyond the control of the Association, there was a marked decrease in the attendance of the general public, and the financial return to the Crystal Palace Company was not so satisfactory as before.

'At the General Meeting (23rd Sept. 1875) Mr. Hunter resigned the Secretaryship, and was succeeded by Mr. Cleaver, who, however, in consequence of the pressure of other engagements, only held office until June following, when your present Secretary was appointed. The Committee would have wished to hold their third Exhibition at the Crystal Palace, but were unable to come to terms with the managers; and they, therefore, arranged for the show to be held at the Alexandra Palace, on the 15th, 16th, and 18th September last. The Exhibition fully maintained its interest, but from the want of vigorous co-operation on the part of the Company's managers, and through the inefficient railway accommodation and bad goods service, the Committee and members were not entirely satisfied.

'The amount expended by the Association on prizes up to the present time exceeds 240*l.*, and this has been met by the liberal special subscriptions of a few friends of the cause. The Committee have always regretted the necessity for any donations to be solicited; but until the number of members is very much increased, they see no other means of providing sufficient funds for exhibitions on the same scale as before.

'In view of holding another Exhibition this year, the Committee attempted again to negotiate with the Crystal Palace Company, but could get no satisfactory reply. The closing of the Alexandra Palace precluded a second arrangement with that Company, and no other eligible place offering, the Committee applied to the Royal Agricultural Society to know if arrangements could be made for holding a show in connexion with theirs. The Committee's advances were not entertained, the Royal Agricultural Society only being willing to treat the Association as an ordinary exhibitor, and no desire was expressed to aid in the objects of the Association. The Committee, therefore, resolved that in lieu of a metropolitan show for 1877, the funds and energies of the British Bee-Keepers' Association be devoted to promoting, assisting, and encouraging provincial shows. The Committee, at the invitation of the Caledonian Apiarian and Entomological Society, made some arrangements for an International Show to be held at Carlisle, but the Caledonian Society afterwards abandoned their intention of holding such a show. Subsequently the Committee received applications from the Devon and Exeter, Dorsetshire and the West of England Societies, for assistance and co-operation at their respective shows during the coming season, to all of which the Committee contributed the Association's silver and bronze medals, and they are prepared to give similar prizes at other provincial shows. The Committee have also in contemplation a plan to provide a tent for loan to local societies, in which practical demonstrations of bee-management may be shown; but the funds in hand have not yet justified the expenditure for the purpose.

'Your Secretary regrets the large number of gentlemen, members of the Association, whose subscription is in arrear; at the present date there are about 340 members, of whom a large proportion have not yet paid the current year's subscription, due May 1st, and some are yet indebted for the subscription of 1876, for which, in most instances, repeated application has been made. Doubtless this occurs from inadvertence; but as it entails upon your Secretary much unnecessary labour, it is thought that this fact only requires to be brought before the notice of the members to be remedied.

'The Committee have had under consideration the propriety of holding monthly meetings, at which members could attend and discuss apiarian subjects, but from the fact of so large a proportion residing at considerable distances, they fear such gatherings would not be successful. The Committee have also, at the suggestion of several members, discussed the practicability of publishing a monthly journal of transactions, as done by most societies of a kindred nature, which journal could be issued to the members free of cost, and to the public at a low charge. As a vehicle for the publication of practical papers, and as a means of giving information untrammelled by private interests, such a periodical would be invaluable. The proper conduct and preparation of a journal of this description, and of a non-commercial character, would entail more skilled labour than could be expected to be purely honorary, and this consideration, added to the probable cost, has hitherto prevented the movement being carried into effect.

'Complaint has occasionally been made that members get little in return for their subscriptions. The reply to this is, that it has not been for any personal benefit, either to themselves or to the members, that the committee and officers have devoted so large a portion of their time and expenditure of funds, but for "the Encouragement, Improvement, and Advancement of Bee Culture in the United Kingdom; particularly as a means of bettering the Condition of Cottagers and the Agricultural Labouring Classes; as well as the advocacy of humanity to the industrious labourer—the Honey Bee." In these objects the Association has been eminently successful; by its means and through its impulse literature advocating and teaching rational bee-keeping has been circulated broadcast through the land; hives have been designed, and sold at prices suitable for both rich and poor, and those unwilling or unable to buy have been taught to make them; many thousands of people now keep bees who, before the Association came under their notice, did not; the honey harvest is gathered in a cleaner, purer, and more saleable manner; and last, not least, the dissemination of knowledge of the art of humane bee-keeping, yearly spreading wider and wider, will, in time, utterly abolish the barbarous practice of bee-murder so prevalent in England.

'Instigated by the example of this Association, which may be termed the parent institution, local societies have been established in many provincial districts, and some of them held bee and honey shows last autumn, which were in most cases attended and assisted by members of your committee, and during the season approaching many more such shows will be held.

'Many leading hive-makers have kindly intimated their willingness to allow discounts to members of this Association.

'As regards the future stability of the Association, this can never be considered secure, and prize-money available, until the annual subscriptions shall amount to at least 150*l.* At the present date even one-third of that sum is more than can be relied upon; and the members should be urged to use their utmost personal influence to add new names to the list. If each would do a little, the objects of the Association could soon be attained, and the British Bee-keepers' Association would be found among the permanent institutions of the land.'

After considerable discussion it was unanimously resolved that this report be accepted and adopted and that it be entered on the minutes and printed for circulation.

Medals were voted to the Wolverhampton and Staffordshire and Caledonian Societies as special prizes to be offered at their approaching shows, for the objects for which they had already been given for the shows of the Dorsetshire Bee-Keepers' Association.

Mr. Walker gave notice that at the next committee meeting he would again bring forward the question of publishing a journal of transactions, and that he would move a resolution on the subject.

FOX KENWORTHY, *Hon. Sec.*

The hotter and drier the summer is, the greater and more frequent are the honey dews. Cold and wet weather are unkind for them. Much rain at any time, as coming from a higher region, washes away that which is already elevated, so that there can be no more until another fit of hot and dry weather, and in the end it dissolveth them quite.—BUTLER.

Echoes from the Hives.

Lochabers, Morayshire.—'I see by your *Journal*, that you have had a very open winter, and early spring in England. We, in the north of Scotland, have experienced the very reverse; we have had the severest winter, and most ungenial spring, seen for many years. All my hives have wintered well, notwithstanding the severe weather. I have been thinking of giving the Ligurian bees a trial by getting an imported queen in the first or second week of July.'—G. F.

Cheadle, Hulme.—'I, this afternoon, opened the hive that had lost its queen, but could discover no trace of any brood in the hive; there is plenty of sealed honey, and the population is good. Had you not advised me to inspect the hive I should have let it stand till all had dwindled away. I may say that this is the first time I ever opened a bar-frame hive. I am very much pleased at my successful manipulation.'

Salisbury.—'With regard to a notice in a recent number of the *Journal*, with regard to laurel as a Bee shrub, it may interest you to know that for two or three years I have used this shrub to shade some of my hives from the sun, having noticed how the bees went to it, as described by one of your correspondents. I quite coneur with what you say with respect to the deficiency of honey at the end of June; I have noticed it for the last two or three years, but especially this year.'—A. G. R.

Ruchlaw, Prestonkirk. N.B., June 6th, 1877.—'We have had a backward spring. Drones first seen with me to-day only (June 6th). I have a hive, which I found barricading its entrance in October, and which I let alone in order to obtain the bees' own decision as to the proper winter opening, and I was further interested to see them remove the obstruction when summer returned.'—Thos. Buchan Sydserff.

Woking, Surrey, June 12th.—'Bees are getting honey very fast now. I have in front of my house about twelve acres of Trifolium clover in bloom, and on my left, close by, about ten of common broom; but they do not seem to take to the latter, they all seem to be off to the clover. Our parks and shrubs also seem to be deserted, so I think it must be a good honey-yielding plant. I put my supers on yesterday; last night they had taken well to them; this morning, at 5 a.m., we could feel the warmth through the quilt on the super.'

Cockforten, June 27.—'I put a cage with a young thrush in it not far from my bees this morning to try and catch another which had got out of the cage, and when I went to look at it was surprised to find that the bees had stung the poor bird to death and were still about him.'—T. Guttridge.

Offley Lodge, Hitchin, July 9.—'During the first three weeks of June the bees worked well on the fruit and clover blossoms. Since then the weather has been very showery, and temperature very low for the time of year in this locality, and little honey has been brought in. I have had some supers beautifully finished off, the workers passing through perforated zinc.

'"Honour to whom honour is due." And let me render all honour to Mr. Cheshire for his directions how to make guide-sheets from natural comb. I followed his instructions, and after some failures, at last succeeded in getting a very nice cast both from worker and drone comb. I used sheets of wax from these moulds and carefully noted the results. From a glass hive I removed the outer frame on each side, and gave in their places frames having guide-sheets (made after Mr. Cheshire's method), of worker comb 4 inches deep. In seven hours these sheets were transformed into combs with cells, and the work was rapidly continued in lengthening them. Being placed at the outer parts of the hive, as I expected, the bees soon changed the form of cell when they began to build lower, and formed drone cells. I gave guide-sheets of the same description 4 inches deep, in three of Lee's Crystal Palace supers, *i.e.* the supers were sheeted throughout from side to side, and from top to bottom. These were placed over perforated zinc on three strong hives. The sheets were transformed into comb in all three instances in less than 24 hours, one being complete and honey in many cells in 22 hours. The first of these was taken off sealed throughout in 13 days. The others in 15 days. The combs are models of straightness, and better than any I had last season. In my sectional supers I used guides made from drone comb, but only 2 inches deep. I have taken off some beautifully finished drone-comb built throughout. But as you remarked in a former communication worker-comb is most likely to be useful.'—J. H. Philips.

Frampton.—'Glorious weather for bees just now. All that managers could desire. My supers are filling well. Flowers are in abundance.'

Struan Station, July 10.—'How are things going with you in London? I have been feeding up till yesterday. No honey to be got outside the sugar barrel. They are now getting a little from the clover, which is just coming into blossom here. I never saw such a backward year. No swarms off in this quarter yet, and no appearance of any. Rain every day and cold.

Sevenoaks, Kent, July 10.—'I enclose a P. O. O. for 15*s.* 6*d.*, 10*s.* 6*d.* being my subscription for the *Journal*, and 5*s.* as member of the Association. Accept my best thanks for all the pleasure and information contained in the *Journal* of the past, and may the future crown your efforts to improve bee-culture with all the success you so richly deserve.'

Bishop Stortford, July 11.—'The limes here are just coming out. There appears to have been a scarcity of honey the last two weeks, proving what you say, a lull between first and second harvest. This season will not be equal to last, there appear to be only the lime and blackberry to fall back upon. At present only three out of eight of your Standard Hives I have had made with windows back and front have filled their hives, but hope now limes are out that they will complete.'—G. T.

Frampton, July 15.—'I have twenty-one stocks; lost three in May. Fed in March, and then discontinued. I have not *obtained* one swarm; had one which left me, I being from home at the time of swarming. I am getting some nice supers; seventeen stocks supered, most of them double; four scarcely forward enough to super. I think of making two or three artificial swarms, the bees cluster so much, although they are supered. I shall try and get some subscribers to your *Journal*.'—J. L.

Stoke-on-Trent, Staffordshire.—'Swarming late; first June 17th, two 19th, cast 29th. No more at present. Going to drive others in a day or two for bad behaviour. Last week a vagabond swarm went two miles to Hanley and took possession of the frame of a street lamp-post, but were safely hived.'

Honey Cott, Weston, Leamington, July 18.—'The introduction of queens is not all plain sailing with everybody, and with me sometimes it is not. Permit me to give you a bit of information respecting what occurred last week. In looking over some of my swarms to see if any combs required to be rectified, I came to one and took one comb out, and no brood visible; another the same, and so on, and still no brood. Well, I looked all through, and none at all could I find; queen-cells had been partly made, but there were no eggs anywhere. Well, I said to myself, "The queen is dead and has left no successor;" so I just went and fetched a very nice pure-bred, and mated Ligurian queen from a nucleus where her young were hatching out, and caged her in same hive, and left her for two days. On Saturday night, when I meant to release her, it was very wet, and I put it off till night—past eight o'clock; and just when I wanted it, I could not find my smoker (though on the following day it was

easy enough to be seen), so I had to do the best I could instead of smoke, and took out the cage and found the bees had gnawed through from the back side of the comb, and, as I expected, had released her themselves; and, as I said, if I had known this, I should not have troubled about opening the hive that night. Well, on Monday night I thought I would look and see how her majesty was getting on, and could not find her: but after looking all the combs over, and going over half of them again, I found a nasty small queen that had been hatched from a cell that I overlooked when I first found there was no brood, and I suppose the bees had killed my beautiful queen. I felt ready to snap her head off, and will, some day, if all is well, because through her and my thoughtlessness, I had lost a nice queen. I ought to have thought of the possibility of there being a queen in the hive, as I have had two cases of there being no brood and yet a queen had just hatched out in former years, which has rather puzzled me.

'The last three weeks have been very bad for honey down here; it is no use for me to think of showing I shall have nothing worth the trouble of taking. Just about three weeks ago, things looked fairly well, especially as I had just taken 40 lbs. from the top of a large hive, by slinging, of course I gave them the top combs. I have some stocks that have not swarmed that I shall get some extracted honey from, and a few small supers. I have been feeding some nuclei to-night. We may get some honey from white clover if it were to come hot, especially as we have had such a soaking rain, but I do not dwell upon it. I took a nice glass off yesterday, about 12 or 14 lbs. and the bees did not leave it, and to-night I found the queen in it; she had got through the zinc and had bred in a piece of the comb, more than 3 in. square in the centre, and I could not see it till I had taken it off. She served me the same trick last year, but as I saw her before putting the super on this year, she seemed so much larger that I did not think she could yet through, so you see the zinc adapters do not answer in all cases. We have no limes our way, only at Leamington, and that is too far off. I do not expect I shall have anything like a hundredweight of super honey this year, and yet most of my hives are so teeming with bees they cannot get in, and lots of room given them in supers, and yet they do nothing. A few mornings last week they were off for honey-dew early, but they did not get much. If I had had such stocks as I have got now fourteen or fifteen years ago, I should have had over half a-ton of honey, but the seasons seem to be quite changed altogether.

'*July* 19.—Weather is better, and things look up. I have just been five miles away from home. White clover looks promising.'—JOHN WALTON.

South Kensington.—'I think your *Journal* very valuable, and it has taught me a great deal that I should otherwise have not known under years of experience. By following one of the plans you recommend for getting large supplies of honey (namely, that of doubling stocks), I have obtained a super weighing about 100lbs. all of most perfect and quite clean splendid comb. If I can I mean to exhibit it.'—E. S. C.

Wax Foundations.—'The best thing out which we have had lately is the wax-guides taken from *new* natural comb. A friend of mine put a frame of it into a hive, and on the eighth day he took out a frame full of brood and most of it sealed (14 in. × 7 in.) One curious thing, there is a small piece of comb which has been put in the wrong side up, so the bees build the cells to incline downwards.'—W. ATKINSON.

Solving the Mystery.—Mr. Proctor, a great authority on astronomy, says the earth is growing larger day by day. Consequently it is not able to move round so quickly; in which case the months and weeks would lag a little. Perhaps this will explain why everything is behindhand this year, whether it be vegetation or cash payments. —*Judy.*

[In regard to vegetation no great harm will be done, as although later, crops would be bigger, and would presently come to be early again, but in respect of cash payments we think the world is quite big enough.—ED. *B. B. J.*]

NOTICES TO CORRESPONDENTS & INQUIRERS.

'H. T.'—Buckwheat is most uncertain as a honey-yielding plant, but a trial will quickly prove whether the bees can find sufficient for their wants. When prolific of honey it is a most valuable adjunct to an apiary.

'A BEGINNER.'—The bees contained in the three skeps under condemnation would be sufficient to populate and furnish the Standard hive, if sufficiently and carefully fed during the honey-drought which closes the year's harvest. The Leaflet on 'Transferring' gives some useful information thereupon, and shows how to utilize the empty combs and those containing pollen and brood which may be found in the hive. From three skeps there ought to be sufficient comb, which would otherwise be thrown away, to furnish four or five of the Standard frames, and they would greatly help the newly-formed colony. In placing the frames and combs in the hive begin on one side, placing an empty frame first, and then a comb of brood, and so on, until all the brood-comb has been introduced; then put the pollen-combs at regulation distances, as outer walls to the colony; and when the interstitial empty frames are fitted further space may be given, by parting the frames, and inserting other empty ones.

There is no special leaflet on hive management, but it is receiving our attention. The cheap hives having no moveable side walls are not quite so convenient as the more expensive; with a No. 1 hive there would have been no difficulty, as lateral space is readily created by the falling outwards of its side walls.

ANGLESEY.—The Woodbury frame-block is a frame in which the sides of a Woodbury frame are held rigidly while top and bottom are being nailed on, so that, if the parts are all of exact dimensions, the frame will come out square and true. It would be impossible to make Standard frames in a Woodbury frame-block, as the former are not square but taper towards the bottom.

E. O., *Union Wood, Collooney* (?)—The information desired was sent (as also the *Journal*), but has been returned marked '*insufficiently addressed.*' As we could not quite make out the address, from its having been so hurriedly written, we cut it from the letter and pasted it on the wrapper, but it was 'insufficient.' A stamped and fully DIRECTED envelope should always be sent.

H. R. T.—We are much obliged by the amount of care and thought you must have expended on the subject of bee-bibliography. The possibility of the number of treatises on bee-keeping rising to 2000 is rather appalling when we consider the limited space at our disposal. The catalogue of bee-books forwarded by 'J. S.' is in type, and awaits a favourable opportunity for insertion.

EVERSOMANY.—How often will it be necessary to assure bee-keepers that bees cannot *make* honey, and that during perverse weather, when none is secreted or the bees cannot get out to find it, it is impossible for them to work, *i.e.* build comb in their suppers or elsewhere unless they are artificially fed?

*** The pressure on our columns this month obliges us, most reluctantly, to postpone articles on the Renfrewshire System: the Natural History of Bees, by Abbé Collin: A Plea for Bee Culture, &c.

Covers for Binding the BRITISH BEE JOURNAL, *may be had, price* 1*s. at the Office, Fairlawn, Southall.*

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION

AT CARLISLE.

SCHEDULE OF PRIZES FOR

BEES, HONEY, HIVES, WAX, &c.

AT THE

Great International Exhibition of Plants, Fruits, and Flowers,

TO BE HELD AT CARLISLE,

On the 6th, 7th, & 8th of September, 1877 (Thursday, Friday, & Saturday).

SCHEDULES may be had, Post Free, on Application to the Acting Secretary, Mr. JOHN MOUNSEY, Victoria Hall, Lowther Street, Carlisle.

SCHEDULE OF PRIZES.—OPEN TO ALL.

Class A.—HONEY AND WAX.

	1st.	2nd.
1. Largest and Best Harvest of Super Honey, the produce of one Hive	20/	10/
2. Heaviest and Best Single Super, the produce of one Hive	15/	10/
3. Best Super in Wood, or Wood and Glass ...	10/	5/
4. Best Sectional Super Combs, separable ...	10/	5/
5. Best Super in Glass	10/	5/
6. Best Super in Straw	10/	5/
7. Heaviest and Best Skep—must be free from Brood, and obtained without destroying the Bees	10/	5/
8. Best Sample of Run or Extracted Honey ...	10/	5/
9. Best Sample of Wax	5/	...

Class B.—HIVES, &c.

1. Best Bar Frame Hive, with Super or Supers	20/	10/
2. Cheapest Bar-Frame Hive, suitable for Cottager, with Floor	20/	10/
3. Best Hive on the Storifying principle ...	20/	10/
4. Best Straw Skep and Super	15/	8/
5. Best and Neatest Observatory or Unicomb Hive, to be exhibited stocked with Bees ...	20/	10/
6. The most beautiful Ligurian Bees, to be exhibited with their Queen in Glass Hive	20/	10/

MISCELLANEOUS.

1. Best Bee Feeder	8/	4/
2. Best method of Quieting Bees during Manipulation	8/	4/
3. Best Honey Extractor	8/	4/
4. Best Super for general use in an Apiary ...	8/	4/
5. Best Bee Dress	8/	4/
6. Best Drone Traps	8/	4/
7. Best Bee Traps	8/	4/

SPECIAL PRIZE, given by Mr. J. DRINKALL,

Boot and Shoe Warehouse, Castle Street, Carlisle.

For the Best and Largest Collection of Hives, Bee Furniture, Bee Gear, and Apiculturist Necessaries, no two Articles to be alike ...	20/	10/

RULES.

INTENDING Competitors must give notice to the Secretary not later than the 30th day of August, specifying the Class and Number in which they intend to Compete, and enclosing One Shilling for Entry Money, for each Exhibit.

All Honey, unless entered for Exhibition only, must be the BONA FIDE Produce of the Exhibitor's own Apiary, gathered in the natural way during 1877.

No Competitor will be allowed to enter more than one lot in each number.

First Prizes only will be awarded should the number of Entries not exceed the number of Prizes offered in any number, unless the Judges specially recommend otherwise.

Honey intended for Sale must have marked on it the nett weight and price, which must include the package which contains it, and arrangements will be made for the Sale of such in Bulk, but only through the Society's Officials.

All Articles intended for the Show must be Staged before 10 o'Clock on the Evening of the 5th, and cannot be removed before 1 o'clock a.m. on Monday, the 10th September.

In all other respects Exhibitors will be subject to the Rules of the Horticultural Society.

By Order of the Committee,
JOHN MOUNSEY, *Secretary.*

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 53. Vol. V.] SEPTEMBER, 1877. [Published Monthly.]

Editorial, Notices, &c.

SEPTEMBER.

'With this month will close a finer honey season than has ever been recorded in the annals of apiculture,' was the opening sentence of the September number of this *Journal* last year, but now it is our fate to be obliged in honesty to say that a worse season than the past has been can scarcely be imagined. Last year the difficult question was, 'What shall we do with our honey?' but now the great cry is, 'What shall we do with our bees? they are starving, weak, and unfit to stand the winter which is coming, and instead of being a source of profit, they have been (in too many instances) troublesome and expensive.'

We are compelled to acknowledge, from the reports that reach us, that these complaints are but too well founded, for, except in favoured districts, bees have yielded little surplus honey; and, save to those who have been able to sell their swarms, they have, as a rule, been absolutely profitless.

Bee-keepers using moveable comb hives have the great advantage that by using the extractor, and taking what honey there may be, and giving back syrup in exchange they can at least prevent loss on the year's transactions, and where their swarms have not succeeded in perfectly establishing themselves, they can, by uniting the bees and brood combs of their weak stocks, re-form strong colonies, and save their spare combs for service next year. There is now no hope of a honey harvest in the proper sense of the term, save to those who are within reach of the heather, and from the accounts we receive the prospects in that direction are not very encouraging. Unfortunately, there will be no metropolitan show this year, so there will be no great gathering of the bee-keepers of the home counties, at which comparison could be made, either with regard to honey results, or improvements in hives and bee-furniture; and it will therefore be left for provincial shows to determine the relative questions in England.

The great gathering at the Highland Society's show at Edinburgh in July last, was a dead failure as regards the honey department of the exhibition, but was fully atoned for by the splendid collection of hives, &c. on view, and the exhibition of manipulation with live bees. The early date was held to be an excuse for the non-appearance of the usual show of Ayrshire supers, and it was intended to hold a honey show at Glasgow during the present month, but the present condition of the honey crop will not warrant the experiment. At Weston-super-Mare in August there was very little honey. At Shrewsbury the supply was better, but at Taunton the advertised show has been abandoned in consequence of its scarcity. The great test show of England will, on Sept. 11th, be at Grantham, in Lincolnshire, where first the union of Apiculture and Horticulture was effected in 1875, through the perseverance of R. R. Godfrey, Esq., of Grantham, who is the prime mover in the present show, from the unavoidable absence of the Rev. D. W. Pennell, the Hon. Sec., who has removed to another sphere of useful labour.

It is intended at this show to hold a honey fair, and it is hoped that it will be a success; we are confident every endeavour will be made to ensure its being so.

At Carlisle, bees and honey will be exhibited in conjunction with horticultural produces at the International Show on the 6th, 7th, and 8th inst., where, through the doubtful income of honey exhibits, bee manipulation, in which we shall take part, will be made a leading feature of the apicultural department, and, we feel confident, will make the exhibition a success.

It is not pleasant to find it incumbent on us to place upon record that the season 1877 is comparatively a failure as regards the honey harvest; but inasmuch as the causes are beyond human control, and we can fairly assert that in accordance with the 'light of the age,' we, as beekeepers in common, have striven earnestly, and done our best (in a general sense) to secure the success we think we have merited, we religiously bow to the great Ruler of events, and trust the experience unpleasantly thrust upon us will be valuable for future guidance. And

now, accepting the position, taking it for granted that 'it is useless to cry over spilt milk,' that it is equally 'ridiculous' to complain of 'what we could not help,' as it would be to complain of what we could have *hindered*, we trust our friends will agree with us that it will be wise to endeavour to make the best of it.

HOW TO MAKE THE BEST OF IT.

The advice herein offered will not be required by those whose apiaries are in nature's favoured spots, where, without exertion on the part of their owners, the bees can fill their hives and supers in almost any condition of summer weather, but is intended to aid those less fortunate who must strive if they would win, and to whom a bad season is of serious consequence.

In our own apiary, exposed as it is to public view, and subject to all manner of vicissitudes through the demands made upon it by those who need any of its products, there can be no reason for concealing the fact that it is not at the present time in first-class condition. It has been our lot (pleasant and gratifying withal) to be called upon to supply the necessities of many private apiaries: these are business matters of course, and such as would not be obtruded before the public, were it not to show that our bees have thereby had adversities to contend with that ought to have (in the face of the difficulties of the season) reduced them to a very low grade in the alphabet of classes, and (if inclined to be funny) we would say that they are now down to W; for nothing but doubling (or uniting) can save many of them from destruction. Regarding, then, our own apiary as a typical one, very necessitous, and requiring great care and judgment to prepare the bees, hives, &c., for the ensuing winter with any hope of their surviving, we venture to urge that those who are in a similar strait will do well to follow our lead. There are, as a matter of course, some stocks in apiaries that are stronger and better than others, the same being usually scattered, in those containing a number of stocks. If any are sufficiently heavy with honey to be worth robbing, they should have their honey taken from them, and their adjacent poorer neighbours should be united to them, feeding them afterwards, as will be presently described. Every two or three weak stocks that stand near each other should be joined together, and all those isolated should be exchanged for others from distant apiaries, and the latter united to such as need assistance at home. We use the term 'isolated' in reference to stocks which are in situations where they cannot be brought by gradual approaches to other stocks; and in such instances, if exchanged for others from a distance of about a mile, they (the latter) might (at this time of year) be set down anywhere, or united to others with impunity.

PLENTY OF BEES AND BUT LITTLE HONEY.

These will be found in most apiaries; some stocks, which the dallying supply of honey will have induced to continue their breeding, in the hope, as it would appear, that better times were coming, but being disappointed, it is important that such should be fed liberally for a few days, and afterwards gently, but continuously, that their breeding may be continued and their store of syrup evaporated and sealed before cold weather causes the chilling of brood and the condensation of the moist vapours within their hives. The food given should be as nearly of the consistence of honey as possible, not only to save the bees the labour of storing a *large* quantity of watery material, but also to prevent the necessity for the excessive evaporation entailed by giving them syrup of thinner quality.

PLENTY OF COMBS WITH BUT FEW BEES.

Stocks that swarmed, and have lost their queens, and many late swarms, will be in this category, and through the unseasonable weather that has predominated many will probably be found in that condition. Many other causes may have led to similar consequences, but in any case where there are only a few bees in a hive, it will be almost hopeless to expect them to pass the winter safely. They should be united to the nearest stock if within a few yards, or if there are two or three near each other, they should be put together in a bar-frame hive, all the brood-combs carefully preserved and kept together, *i.e.* they should form a brood-nest somewhat similar to that in a normal colony. Swarms that need uniting will probably have some pure white comb at the sides of their hives or brood nests, which should be fumigated with sulphur fumes, and stored away in tissue paper for use in supers on a future occasion.

TAKING HONEY FROM BAR-FRAME HIVES.

This may be readily done by means of the Honey Extractor, or, as our able American correspondent wishes it to be termed, the 'Smelator' (see p. 86), a concise word, easily written and highly expressive, and which we shall be quite willing to adopt.

Extracting honey after such a bad season, when the majority of bees are on the alert,

ready to adopt, as regards *honey*, the parental advice, 'Get money—honestly if you can—but get money,' requires caution; and therefore it will be well to give them as little opportunity for plundering as possible, by working in the evening, and closing with perforated zinc the entrances of all the hives but that to be operated on. When entrances are closed, ample top ventilation should be given, or the bees becoming excited by being imprisoned may create too much heat in their hive, and cause the collapse of their combs.

All chance of robbing, and the consequent loss of life, having been precluded, it remains to protect the bees to be deprived against themselves, or in their excitement at the smell of running honey many would get drowned or killed; and this will be best done by blowing smoke into the upper part of the hive, and causing the bees to descend while one or two of the side frames of comb are removed. The quilt should not be wholly removed, but drawn aside only, while about half the combs—*i. e.* those on one side—are being operated on. The extractor should be within doors where bees have no access, and if one in which the combs revolve *within a can*, as is the case with many, it should stand near a fire, that the air within the can may be warmed; otherwise the rapid revolution of brood-comb within the cold metallic chamber may chill the sealed brood and create disease, which during winter may become ineradicable.*

The side frames of comb, which at this season will contain little or no brood, should first be operated on and *set aside*: two or three of the more central should then be taken out, the bees brushed off, and when the honey has been extracted they should be replaced in the hive in their correct positions and the quilt drawn over them. The whole of the frames left within should then be pushed across the hive, leaving the vacancy on the opposite side to that first opened, and the smoking should there be resumed to drive the bees into the combs that have been operated on, where they will find ample amusement in clearing up any honey left on them. The outside combs on the then open side should be now taken out and carried within doors, to be set aside while the remaining central brood-combs are 'extracted,' which should be done as quickly as is consistent with carefulness; and when returned the outside ones should pass through the same ordeal, and the whole then in the hive should be pushed back into their places. There then only remain the side combs first removed, which should be returned, and the hive may be closed up.

* The only 'Smelator' extant in which there is no appreciable circulation of air, and in which brood cannot ordinarily be chilled, is Abbott's 'Little Wonder.'

Having taken all the honey, it will be necessary to commence feeding the stock at once, and the rapidity and continuance of the supply must be in accordance with the condition of the brood-nest. If there is much brood it will be evident that there is an active queen, and feeding at almost any rate will stimulate her to further effort: but on no account must the supply be suddenly stopped, or much of the sealed brood will be thrown out, and all that in embryo will be destroyed. In extracting, the honey cells should be unsealed by slicing them off with a keen warm knife, the side of the comb to be relieved of the honey should be placed on end close against the wire-work of the frame, and in such a way that the bottom of the comb shall go foremost in describing the circles or revolutions.

BREAKING UP STOCKS IN STRAW SKEPS.

Alas! how many hundreds of straw skeps, with their valuable contents—combs, brood, and populations—will this year be sacrificed at the shrine of Prejudice, Ignorance, and Superstition?—a triple godhead embracing a vast number of bee-keepers in its following, to whom any deviation from the beaten track traversed by their ancestors is a sacrilege, and any new invention a sin. The bee-lore imbibed at the mother's knee taught these votaries of the sulphur-pit to '*take*' in autumn—*i. e.* destroy with brimstone fumes—the bees of the heaviest and lightest of their hives, and appropriate their stores, leaving the middle-weights as stock for the next year. Now, in the heaviest there is generally found in addition to the coveted store of honey, a quantity of comb containing brood and pollen, and in the light ones no honey worth taking into account, only a little brood and pollen, and the remainder empty comb. Supposing in an apiary of twelve stocks there are three heavy ones and three light ones to be 'taken,' six in all, we venture to affirm that after all the honey has been removed by *our* method, there will remain sufficient bees, combs, and pollen to establish two excellent colonies of bees in bar-frame hives, which, with the aid of about five shillings' worth of sugar syrup to each to enable the bees to pass the winter in safety, shall, in the spring ensuing, be worth much more than the best two of the six stocks remaining; and now is the time to do the important work.

The first necessity is the hives, and they may be bought cheaply enough—good bar-frame hives, with roof and floor-board, correctly made for seven or eight shillings—much less than the highly-praised 'Pettigrew' skeps,

when 'fixings' are included, and much more conducive to enlightened bee-culture. Neighbour and Sons, Lee, Abbott Brothers, Martin, Fuggle, and others, provide them new; and they may be bought second-hand, good enough for the purpose, and often far superior to the new ones, for a mere song.*

Hives having been obtained, an extractor (or smelator) will be necessary; and in respect of this addendum to apiaries, if villagers would agree, one machine would be sufficient for a district, so that a shilling share in a purchase would be all the expense needed in that behalf. Then there would be required a wire frame for holding the combs during the operations: a simple matter, costing about two shillings, but which any one may make for less. It is in the nature of a sprat-gridiron or a chop-toaster, affording a means by which an enclosed honey-comb may be turned about without it being necessary to handle it. The first that was made for the purpose was a double frame of wood with wire-work on both sides, the comb being intended to lie within it, and touching the hinged end, so that when lifted about by the other end there would be no tendency in the comb to drop or tear itself.

All being in readiness, we would, on a quiet evening, close the entrances and open the ventilators of the hives to be left (as noted in former article), and having smoked the six to be 'broken up,' would drive† all the bees out of the whole of them, or if any were unwilling to leave by that process, would fumigate them with puff-ball,‡ to compel them to do so, and set them on their own stands, removing their hives within doors, as per former article.

The driven bees should when quiet be sprinkled with syrup, and at dusk united into two lots of about equal strength, and allowed to cluster. In the meantime the hives of comb will have to be kept warm within doors, and, having been cut to pieces (for old skeps are never worth preserving), the combs should be cut out, the honey extracted, and they should then be fitted into the frames of the bar-frame hives provided, after the manner described in the leaflet on 'Transferring.'

In fitting the combs to the frames, make them touch the top and sides of them as closely and as much as possible, that the bees may make plenty of adhesions without much labour. Reject a superfluity of drone-comb, leaving only about a hand's breadth in one of the frames, which, during winter time should be away from the brood-nest, as bees cannot pack themselves as closely in drone-cells as in worker, and might suffer from cold. In using the folding frame, when about to apply the bar-frames in which to fix the combs, lay sundry tapes across the latter, fold down the frame and turn it over; the tapes will then be on the under side of the comb, and can be tied round it and the frame without any difficulty.

When the frames are filled with comb, and placed at their correct distances in the hives, the latter should be placed upon their stands, and the bees shaken from the skeps on to them, and when the bees have in a great measure disappeared amongst them, one or two thicknesses of light quilting should be laid upon them, and occasionally disturbed to cause them all to go below, or, to facilitate their descent, a puff of smoke should be driven under the quilting, and when all are down, the hives should be covered up, the feeding-bottle set on, and all left for the night. The hives previously closed up should have their entrances unclosed, and the ventilators closed up, and the whole may be left for forty-eight hours, when the united stocks should have the tapes removed from the combs, and feeding should be proceeded with in due form.

MR. PETTIGREW'S METHOD OF TAKING HONEY.

Since writing the above, we have noticed in the *Journal of Horticulture*, Aug. 23rd, which we subjoin, the method advised by the above bee-master, and we are glad to find him recognising the usefulness of bar-frame hives. The chief points in which we do not agree are in the waste of the combs and brood, and the thinness of the syrup he advocates.—Ed. *B. B. J.*

'Taking Honey (*A Novice*).—We advise you to drive the bees out of the old straw hives and put them into empty bar-frame hives. Probably the hive that you have made is as good as any you can buy, but the "Italian frame hive" which you have purchased is not a proper hive for bees in this country. The people and country that produce and use such hives are not far advanced in the art of bee-keeping. Mr. Lee of Windlesham, Bagshot, and others about London, can supply you with hives far superior to the Italian one. First drive the bees into straw hives or round boxes, then cast them into the bar-

* It is unfortunate in some respects, that those who write clearly, and prove a superior knowledge of hives and bees, are invariably appealed to for advice thereupon; and it is not, therefore, *very* surprising that writers, in time, become business agents in those particulars. Some ill-natured, disappointed charlatans make that fact a reproach to them, deeming them 'interested writers,' as if themselves were free from taint. We, however, appeal to the common sense of the public, and ask whether men can be influenced by any other *desire* than the improvement of bee-culture, in recommending hives, which cannot possibly bear each a shilling profit.

Those who trade only on high-priced hives *may* be open to the imputation, but considering the cost of advertising, correspondence, packing, and delivery, if the cheap hives really cost *nil*, the price obtained for them by the vendors would not be worth *lying* about.—Ed.

† See Leaflet on Driving. Post free for one stamp, from our office.

‡ See Leaflet on Transferring. Post free for one stamp, from our office.

framers and place them where they now stand. Boil 30 lbs. of sugar in 30 pints of water, and give all the syrup to the two swarms in fourteen days—about 2 lbs. of syrup every night to each swarm. In this way you will get the honey from the old straw hives and two good stocks in frame hives. Do not attempt to fill the frames with old combs—a most foolish practice with some bee-keepers, for bees readily make fresh combs from syrup, and thrive and prosper amongst them exceedingly. If you want the honey from your large circular box the bees should be driven from it and hived in a bar-framer.—A. P.'

UNITING.

The process for uniting stocks and swarms was sufficiently described on page 25 of the *Journal* for June last, but from the mistakes that have been made, it appears necessary to add directions for uniting the bees, driven from condemned stocks, to others in distant apiaries. The chief thing forgotten with regard to bees from distances is that, although gorged with honey at the time of driving, they often, before being united to others, have had time to become hungry again, and therefore should be well fed before any attempt at uniting is made.

This may easily be effected by sprinkling some syrup (within doors) over the canvas by which they are confined to their skeps, and letting them take it until they will take no more. The skeps should then be set right way up, so that the bees may cluster in their crowns; and when nearly dusk at evening, the stocks to which they are to be united should have all their bees driven out, which with the others should be sprinkled with 'syrup for uniting,' as herein described, and both lots should be mixed together and treated as described for uniting in June.

RECTIFYING COMBS.

The autumn examination of stocks offers a good opportunity for rectifying combs that are crooked or that contain too much drone comb. This sort of work should be done in the latter part of the day, and all bees except in that operated on should be shut in their hives as hereinbefore suggested, to prevent the possibility of robbery and the consequent confusion in the apiary.

PREVENTING LOSS OF HEAT IN BAR-FRAME HIVES.

One of the objections, and we think the only serious one that can be brought against bar-frame hives as now 'improved,' is, that they permit the escape of much heat from the brood-nest, round the ends of the frames to the cooler parts of the hive, where, as it contains much aqueous vapour, it condenses and sometimes renders the outer combs damp and mouldy. To obviate this, if some pieces of wood, half an inch square, and long enough to reach from the tops of the frames to the bottom of the hive, were thrust down between the frames at their ends, the circulation of heated air would be prevented, and all surplus heat and moisture would have to pass upward through the quilt.

The pieces of wood should fit against the front and back of the hive, and should fill up the spaces between the frames there abutting. Four pieces at each end of a hive intermedially between the frames would have all the effect desired, and would add much to the comfort of the bees, and prevent the consumption of stores as a means of renewing the wasting heat of the hive.

CAGE FOR EXHIBITING QUEENS.

We have received from Mr. Aston, of drone-and-bee-trap celebrity, an ingeniously contrived cage for enclosing a queen and her courtiers on a comb while exhibiting her at exhibitions of manipulation with live bees. It consists of a rim of perforated zinc, about two inches in diameter, with a clear watch-glass let into the top. Any one can make such an one by taking a strip of zinc three times the diameter of the glass, and clipping it at every quarter of an inch along one edge, the two ends are then wired together, and every alternate quarter of an inch of the cut edge is bent inwards, the glass is laid upon the platform thus formed, and the upstanding portions of the zinc are bent down upon it, holding it firmly in its place. It is then fit for use and will be very acceptable at all such exhibitions as are suggested.

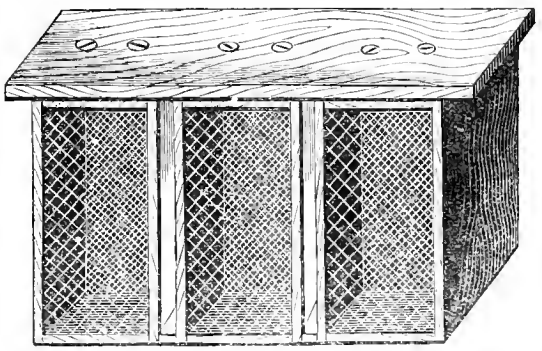
BEE FOOD AND SYRUP FOR UNITING.

Five pounds of loaf sugar boiled for a few minutes in two pints of water, with a small wine-glass full of vinegar added while boiling, is our general recipe for syrup, and to make it thicker, as it should be, for storing for winter, it only requires to be boiled for a short time longer. For uniting bees, when sprinkling them is necessary, the syrup cannot well be too thin, in which case, half the sugar only, or double the quantity of water, should be used, and two or three drops of essence of peppermint added and stirred in. Thick syrup, when thrown upon bees, is apt to make them stick together in an inextricable mass, and to cause their suffocation.

THE NEW IDEA FRAME.

Experiments with this frame have led us to the conclusion that the much-vaunted perforated zinc at present used for preventing the passage of queens cannot be relied on for that purpose, nor does it prevent, in some instances,

the passage of pollen-laden bees. We have had little difficulty in getting the sections of the frames filled with comb, beyond that arising from the scarcity of honey, but in some instances the comb has been immediately filled with brood in most regular order, and in others some of the cells have had pollen deposited in them. This argues either that queens and bees differ in size respectively, and that one pattern of zinc will not suit all equally well, or that the bees and their queens are very wilful, for in the two sets of sections received from our honourable friend at Haverhill there was not a speck or blemish of either brood or pollen. The engraving represents a set of sections; they are



our original sections, covered on both sides with the zinc, and screwed to a thin top bar of the same width, leaving spaces between them for the passage of the queen. We have noticed that the zinc has a rough side as well as a smooth one, caused by the slight burring, the effect of the punching; and it is possible that if the rough edges of the holes were kept outside, the mischief, in both respects, might be prevented. We have been favoured with some samples of the 'perforated zinc' recommended by our esteemed correspondent at Nancy (France), which, however, is made of iron plate, very strong for the purpose, but untinned; and we note that although the holes in it are oblong, their height is considerably less than the diameter of the holes in the zinc here used, and yet, while restraining the queen, the passage of the bees is permitted. Taking the whole question as it stands, it appears to us that English bee-keepers are still 'at sea' with regard to the calibre of perforated zinc which will restrain the queen and drones, yet permit the passage of workers.

LATENESS OF YOUNG QUEENS OVIPOSITING.

Should any of our readers be disappointed by their young queens appearing to be unfertile through delayed oviposition, they may, in most instances, attribute it to poverty of income through the bad weather; and if they will feed the bees liberally for a few days they may find the obstruction removed, and the queen delighting in her work. There have been many cases of the kind this season; but feeding has been the cure-all of those brought under our notice.

CHLOROFORM.

This anæsthetic should not be used in an apiary, as it is of most treacherous character. Sometimes an ounce will not bring the bees down, and at others half-an-ounce will kill them all. It will be better to avoid an agent whose strength cannot be relied on; and, where fumigation is determined on, to use the fumes of dried puff-ball.

DEATH OF MISS GRAHAM OF DUNTRUNE.

All British apiarians will notice with the deepest regret the death of very possibly their eldest, certainly most accomplished, and venerated sister, Miss Clementina Stirling Graham of Duntrune, near Dundee, at her residence there, on Thursday, 23rd August last. She survived to enter into her ninety-sixth year, having been born in the Seagate, Dundee, on 4th May, 1782.

This most amiable, witty, and highly accomplished lady was a leading ornament in the best circles of Edinburgh society of half a century ago, of which Sir Walter Scott, Lord Jeffrey, &c., were distinguished members. She was the last representative of the family of Viscount Dundee, better historically known as Graham of Claverhouse. The venerable lady carefully preserved the sword, and treasured in her repositories the marriage contract and other documents, the property of her ancestor, the hero of Killiecrankie.

Besides her work *Mystifications*, which attained a fourth edition in 1829, she published a translation of *The Bee Preserver*, by Jonas de Gelieu, and dedicated that work to the Highland and Agricultural Society of Scotland, as did Howatson of Humbie his *Apiarian Manual* two years before, and Bonner his book in 1795, all looking to the National Society as their natural patrons, the cause of Apiculture being then, as now, the most neglected branch of Agriculture.

With the view of assisting the work of getting the Caledonian Apiarian Society brought permanently under the wing of our National Society, I took the liberty of addressing Miss Graham this last spring, and received a prompt and courteous reply to the effect that she never was a member of, or in any way connected with the Highland Society further than dedicating her book, which was introduced to the notice of that Society by Sir Walter Scott, and that she received from the Society a silver medal in acknowledgment; at the same time informing me she was one of the patronesses of the East of Scotland Bee-keepers' Society, and interestedly alluded to the successful exhibition at Dundee of last autumn. Some weeks thereafter, a lady friend resident in our county

chanced to be on a visit at Dundee, and with some friends spent a pleasant afternoon at Duntrune, and in course of conversation Miss Graham elicited the coincidence of her visitor being well acquainted with the present writer, and was kind enough to charge her with a message to me, apologising for what she termed her carelessly-written hurried letter, and with a touch of her old humour added, 'I daresay the gentleman will forgive me when he discovers his fair correspondent was a lady of ninety-five years of age.' My friend informed me she preserved all her faculties to a wonderful degree for her great age, taking a most intelligent interest in the literature and passing events of the present, besides being, of course, a high authority as to the events and incidents of 'Auld lang syne.'

I have much pleasure in enclosing for 'Our Editor's' inspection that precious relic, Miss Graham's letter, who will doubtless agree with me as to the wonderfulness of the caligrapby. Some correspondent better informed will doubtless supply fuller information as to her interest in apiculture, the above simple notice being in the meantime but a stone for the cairn of respect we all entertain for the memory of the deceased venerable lady.—A RENFREWSHIRE BEE-KEEPER.

THE DIVISIONAL HIVE.

This hive, as its name implies, is composed of sections, whose outside measurement is 15 in. by 9 in., their sides being $1\frac{1}{2}$ in. wide by $\frac{1}{2}$ in. thick; the top and bottom rails $\frac{7}{8}$ in. by $\frac{3}{8}$ in. There is an inner side at each end of the sections, of same width as top and bottom rails, but only $\frac{1}{8}$ in. thick. This allows the combs to be built firmly to each side, but still allows the bees a space of $\frac{1}{4}$ in. to pass round them.

Ten of these sections (which rest on a $\frac{1}{4}$ in. rabbet) compose a hive, although twelve may be used, or the hive may be reduced to any size, as the window at the back is in a separate frame, and can be used for dividing the hive where required; and, unlike dividing-boards in bar-frame hives, it makes a *complete* division, so that no air can pass, thus economising heat, which is a great advantage when the hive contains a small swarm or stock.

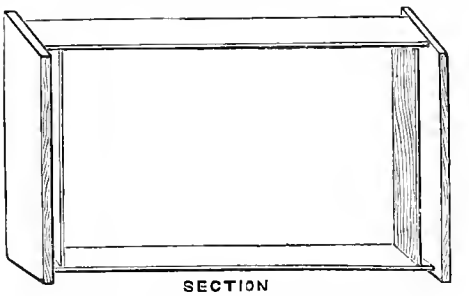
It is impossible for the combs to swing, as the wide ends of the sections are flush with one another, and, being pressed tightly together from the back by two powerful springs, they cannot move until released.

When necessary to manipulate, these springs fold back out of the way, allowing a lateral space of several inches. The hive has no crown-board, but is intended to be used with the quilt.

The cage of an extractor may be easily altered to suit these frames, the two ends only being wider than the comb.

As regards the possibility of the bees propolizing where the wide ends of the sections meet, the hive has stood a trial of twelve months, and the sections have always parted with the greatest ease; for, being planed true and pressed closely together by the above-mentioned springs, they cannot be stuck together by propolis.

The floor-board is reversible, and is kept in position by wedges underneath. The entrance, which has a porch, is regulated by sliding-doors, and may be opened as wide as 15 inches. The hive stands on stout legs, and has a neat cover, which allows sufficient space for the super, which is of the sectional class. If reversing the combs be the object of any one, it can be done with this hive, as may be seen by looking at the illustrations of a section, which is



SECTION

the same size and shape at top and bottom. This is the only hive whose frames of comb may be reversed.*

The price is 40*s.* complete, including clasps to sectional super, and may be obtained of the inventor, —SAMUEL SIMMINS, *Crawley, Sussex.*

THE DORCHESTER BEE AND HONEY SHOW.

By a Correspondent.

The first exhibition in connexion with the newly-formed Dorsetshire Bee-keepers' Association was held at the county town, Dorchester, on Thursday, August 23rd, and was a most decided success. Notwithstanding the general outcry about the badness of the season, the Committee were determined to have a Show. So, instead of following the example of their Exeter and Taunton friends by abandoning their programme, they re-doubled their efforts, and met with the success they so well deserved. The entries were far more numerous than had ever been expected in nearly every class, and all the staging that could be crowded into a monster tent was covered with exhibits. Some of the supers were of splendid quality and astonishing weight. One local pile, taken from a single stock, contained over 90 lbs. (nett) of honey of the most delicious quality, in beautiful straight combs, perfectly sealed. Indeed, there was abundant evidence that the Sherborne Show of last year had been of great educational value, for several of the successful exhibitors had adopted improved hives and supers in consequence of hints they there received, and freely admitted their indebtedness. There was an excellent show of hives and apicultural apparatus, Messrs. Abbott, Brothers, Southall, and Mr. James Lee, Bagshot, being the leading exhibitors. Mr. John Walton, Leamington, also sent one of his extractors, which shared attention with 'The Little Wonder,' both being worked and explained by members of the Committee. Observatories stocked with living bees were sent by Mr. W. R. Vatcher and Mr. M. H. Tilley, of Dorchester; Mr. J. Brown, of Maiden Newton; and Mr. W. Martin, High Wycombe. As these were such a source of attraction to the general public, the judges were empowered to give three additional prizes, to compensate the owners in some measure for the trouble they had taken in bringing them to the Show. Those sent by the two gentlemen first named were so made that every comb stood by itself, and could

* We presume our correspondent means *inverted*, as almost all bar-frames are capable of being 'reversed.'—ED.

be seen on both sides. Each hive was on a revolving stand, and was fitted with numerous ingenious appliances for ventilation, supering, &c. A special prize was also awarded to Mr. Brice Wilson, of Newbury, for his new observatory, which attracted much attention. The manipulations were most successfully conducted by Mr. James Abbott, who gave full and clear explanations of the various operations. Mr. J. Brown also lent valuable assistance in this department, and answered the scores of questions asked by spectators. The operating enclosure was kept quite free from intruders, but, so great was the anxiety to see all that Mr. James Abbott was doing, that the stall boards, and the poles supporting them, were forced against the gauze, which was much damaged. The Show was held in connexion with the annual exhibition of the county Horticultural Society, and was most encouraging to all concerned. About 16*l.* was taken at the door, although all subscribers and members were admitted free. As they were so well patronised the Committee gave the judges *carte blanche*, and a number of special prizes were awarded to local makers of hives, &c. Indeed, all the arrangements were on the most liberal scale. The Dorchester bee-keepers kept 'open house' for all apicultural friends, and also sent, at their own expense, a small tent well stocked with creature comforts to Colliton Park, where the Show was held, for the accommodation of those who lent assistance during the day.

The following is the Prize List :—

HONEY, HIVES, &c.

Open.—Largest and best harvest of honey belonging to any one exhibitor—First, 1*l.*, Mr. W. Martin, High Wycombe; second, 10*s.*, Mr. Jno. Antell, sen., Puddletown; third, 7*s.* 6*d.*, Mr. T. Stickland, Puddletown; fourth, 5*s.* each (equal), Mr. W. H. Dunman, jun., Troytown, and the Rev. H. Everett, Dorchester. Heaviest and best harvest of super honey from one stock of bees—First, 1*l.*, Mr. T. Stickland; second, 10*s.*, and third, 5*s.*, Mr. Jno. Antell, sen.; extra, 5*s.*, Mr. W. Martin. Super of honey in the comb, of the finest quality, not less than 10 lbs.—First, 10*s.* each (equal), Mr. T. Stickland and Mr. W. H. Dunman, Troytown; second, 5*s.*, and third, 2*s.* 6*d.*, Mr. Jno. Antell, sen.; extra, 2*s.* 6*d.*, Mr. W. Martin. Best and most complete bar-frame hive, with stand, &c., complete, fit for immediate use—First, 1*l.* each (equal), Messrs. Abbott, Southall, Middlesex, and Mr. James Lee, Bagshot, Surrey. Best and most complete collection of hives—2*l.*, Mr. James Lee. Cheapest and best complete hive on the bar-frame principle—First, 10*s.*, Mr. James Lee; second, 5*s.*, Messrs. Abbott, Bros.; extra, 2*s.* 6*d.*, Mr. C. W. Downe, Blandford. Best and cheapest super for general use in an apiary—First, 10*s.*, Mr. James Lee; second, 5*s.*, Messrs. Abbott, Bros. Best and most complete observatory hive—First, 1*l.*, Mr. W. R. Vatcher, Dorchester; extra, 10*s.*, Mr. J. Brown, Maiden Newton; extra, 10*s.*, Mr. M. H. Tilley, Dorchester; extra, 5*s.*, Mr. W. Martin; special, 1*l.* 1*s.*, Mr. Price Wilson, Newbury, Berks. Best and cheapest honey extractor—First, 10*s.*, Messrs. Abbott; second, 5*s.*, Mr. J. Walton, Weston.

Cottagers' Classes.—Largest and best harvest of honey in comb: second, 10*s.*, J. Bridle, Frampton; third, 5*s.*, W. Chubb, Evershot. Best and heaviest single super of honey: second, 10*s.*, W. Chubb; third, 5*s.*, J. Bridle. Best and cheapest complete bar-frame hive, made by the exhibitor: 1*l.*, Mr. W. Martin. Best and cheapest straw skep, with super, for depriving purposes: 1*l.*, Mr. R. Legg, Compton Abbas.

Extra prizes offered by the British Bee-keepers' Association.—For members of the British Bee-keepers' Association only.—Largest and best exhibition of super honey from one stock of bees: first, silver medal, Mr. W. Martin; second, bronze ditto, Mr. C. Tite, Yeovil. Ditto Dorsetshire ditto.—Ditto: first, silver medal, Mr. T. Stickland, Puddletown; second, bronze, Mr. W. Martin. Cottager gaining greatest number of prizes in Classes 10, 11, 12, 13: bronze medal, J. Bridle.

Special Prizes.—Assortment of straw skeps and supers: 1*l.*, Mr. C. W. Downes. Cheap and useful straw skep and super: 10*s.*, Mr. C. E. Norton. Collection of natural objects relating to bees and bee-keeping: 21*s.*, Mr. C. Tite.

The judges of plants and flowers were Mr. Elliott, Mr. Hayter, Mr. Saltford, and Mr. Mills.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY'S SHOW.

The unprecedentedly wretched bee season now drawing to a close has caused our Society to abandon all idea of holding our usual Glasgow September exhibition.

In my official capacity as present correspondent for this Society I would, with your leave, like to give public expression to my regret at the very general buzz of dissatisfaction among Scottish apiarians at the exceedingly meagre and bitter tone of report of the late most successful and interesting four-days' exhibition at Edinburgh.

Our Society considered it a very high honour to be permitted to hold our exhibition in conjunction with, and under the auspices of, our National Agricultural Society, and although visited by but a tithe of the teeming thousands to the main exhibition, our drawings for admission amounted to within a few shillings of the handsome sum of 70*l.*—from past experience a very great success indeed.

The show of honey was very far from what we would have liked, either in extent or sealed completeness; but what else could have been expected in such a season? True it was, we were poor, but I am proud to say we were honest; no 'shoddy' manufactured productions disgraced our tables.

The deficiency of honey exhibits was in a great measure compensated for by a varied and most extensive display of hives and bee-gear of every description. Examining the great mechanical ingenuity displayed in these, the distinctive features of the Black, the Italian, and the Cyprian bees—of the Observatories, and the wonderful control of the bee-master over our little people—all elicited the greatest surprise and delight of the crowds of visitors to our subsidiary show; not overlooking the twenty-four hours' conjoined reign of the Black and Italian queens, their most interesting meeting at last, and the final mortal combat for the pre-eminence, resulting in the death of the old Sable monarch and the victory of her Italian rival,* were all subjects we not unnaturally expected would have been enlarged and commented upon by the facile pen of 'our Editor,' with his wonted ability and felicitousness of expression; but I have to remind my numerous irate correspondents that our show falling so near the close of the month, the task had evidently been deputed to 'a Correspondent,' possibly some youthful lieutenant, who when he again tries his ''prentice haun' at reporting may succeed a little better.—R. J. BENNETT.

[We much regret that dissatisfaction should be evinced in the form implied above. We were engaged during the whole of the four days of the show, in the manipulating tent, up to the hilt in the labour which mainly attracted the visitors, and produced so many *golden* proofs of success. There was very little that was new in the exhibition of hives, &c., save Mr. Brice Wilson's Observatory, which he has undertaken to photograph and describe when more perfect. Almost everything else that was there that was noteworthy, had been exhibited before, and fully described, and we hope the generality of our readers will think a cursory allusion to them sufficient. Our 'lieutenant' is no ''prentice haun,' but can give a good account of himself, as will probably be seen if he feels called upon so to do. The show commenced on Tuesday, July 24, and ended on Friday night, 27th. Saturday was devoted to clearing off, and that night and Sunday to the journey home. We hope this explanation will satisfy and disarm the 'irate correspondents' alluded to by Mr. Bennett, and that they will sheathe their stings until they are the subjects of wilful offence from the Editor of the *B. B. J.*]

The following is the full Prize List :—

1. For the two best filled and finished supers above 20 lbs. each: first prize, John Muir, Fenwick.

* The description, by Mr. A. Neighbour, of this interesting combat will be found on p. 92.—ED. *B. B. J.*

2. For the best filled and finished super above 20 lbs.: first prize, Major Ferguson, Cassilis House, Ayr.

3. For the best filled and finished super above 12 lbs. and under 20 lbs.: first prize, Benjamin Taylor, Burns' Monument, Ayr.

4. For the best filled and finished super—straw, wood, or glass—any size: first prize, Rev. R. Saunders, Tundergarth, Lockerbie.

Heather Honey of 1876.—7. For the best filled and finished super above 20 lbs.: First prize, William Sword, Falkirk.

Comestibles.—12. For the best liqueur or wine made from honey, with recipe attached (not less than two quarts): first prize, silver medal, Mr. R. Symington, Market Harboro'; second prize, bronze medal, J. G. Desborough, Stamford.

Hives.—16. For the best hive for observation purposes, all combs to be visible on both sides: first prize, silver medal, Mr. Brice Wilson, Newbury, Berkshire; second prize, bronze medal, Geo. Neighbour & Sons, 149 Regent Street, London.

17. For the best and most perfect bar-frame hive, with super, or set of sectional supers, and cover complete: first prize, silver medal, Mr. C. N. Abbott, Southall, Middlesex; second prize, bronze medal, Mr. J. M. Hooker, Sevenoaks, Kent; third prize, certificate, Mr. William Thomson, Blantyre.

18. For the most perfect hive on the storifying principal: first prize, silver medal, Mr. William Thomson, Blantyre; second prize, bronze medal, Mr. C. N. Abbott, Southall, Middlesex.

Wax.—20. For the best sample of wax guide-sheets, not less than six sheets: first prize, equal, Mr. W. Raitt, Dundee; Mr. C. N. Abbott, Southall, Middlesex; third prize, Mr. A. Montgomery, Kilmaurs.

21. For the best two samples of wax, in cakes of not less than 1 lb. each: Mr. A. Montgomery, Kilmaurs.

Miscellaneous.—22. For the best and largest collection of hives, bee-furniture, bee-gear, and apiculturists' necessaries, no two articles to be alike: first prize, silver cup, Geo. Neighbour & Sons, 149 Regent Street and 127 High Holborn, London; second prize, silver medal, Mr. C. N. Abbott, Southall, Middlesex; third prize, Mr. W. W. Young, Perth.

25. For the cheapest, neatest, and best supers for producing honey-comb in a saleable form: first prize, bronze medal, Mr. J. M. Hooker, Sevenoaks, Kent.

26. For the best honey-extractor, portability and cost to be taken into consideration: first prize, silver medal, Mr. W. W. Young, Perth; second prize, Mr. Steel, Foulis, Perthshire. Abbott's 'Little Wonder,' though adjudged first, could not take a prize, there being no alteration from last year.

Ladies' Prize.—32. For the best executed group of wax-flowers, fruits, or other ornamental design: first prize, silver medal and certificate, Mrs. M'Kay & Son, 20 Brougham Street, Edinburgh.

WEST OF ENGLAND APIARIAN SOCIETY.

TAUNTON BRANCH.

At a special meeting of the committee, held August 7th, it was unanimously decided, 'That owing to the unfavourable honey season, the Bee and Honey Show, which was to have been held on August 16th, in connexion with the Flower Show in Vivary Park, be deferred, and that the funds collected be retained for a future exhibition. That subscribers to the Prize Fund wishing to have their money returned may have it on application to the Local Hon. Secretary, but the Committee express a hope that those who have kindly subscribed will allow their donations to remain as a nucleus fund to promote the objects of the Society.'

It is with great reluctance that the Committee are compelled to relinquish the idea of holding a show this year, but such a wretched honey season as the present has not been known for many years, and the reports which have reached the Hon. Secretary show that the failure of the honey harvest is general; they therefore think they will be consulting the best interests of the Society by holding no show this year.—Ch. Lewis, *Local Hon. Secretary.*

THE CRAWLEY AND IFIELD SHOW.

The *Sussex Daily News*, in its report of the above meeting, says, 'Mr. Abbott (Middlesex), the noted bee-master, and his son, from Southall, cleverly manipulated hives of bees collected from the neighbourhood, and transferred them from the old straw hive to those constructed on the humane principle. This exhibition is already giving a zest to bee-culture, aided by the example of Mr. S. Simmins, of Crawley, who has long adopted the new methods. Mr. Abbott has rendered very essential service to the Society by his kindly aid in this particular.'

It was most gratifying to find that the exhibition of manipulation completely atoned for the scarcity of honey on the show tables. The weather was bad, and the company not numerous, but we may safely affirm that ninety per cent of the visitors deserted the flowers for the bees.—Ed. *B. B. J.*

WESTON-SUPER-MARE BEE AND HONEY SHOW.

Prize List.

This exhibition came off with the usual success where live bee manipulation forms part of the programme. The honey supplies were very scanty. The following is a list of the prize winners:—

Hives.—For the best hive for observation purposes, combs visible both sides. Bronze medal—Mr. Obed Poole. For the best and most economical hive on the moveable comb principle. First prize, silver medal, C. N. Abbott, for the Standard. A silver medal was also awarded to James Lee for excellent workmanship in his hive.

Bees.—For the best hive of Ligurian bees. Bronze medal—Mr. Obed Poole, Uphill. Ditto (English bees). Bronze medal—Mr. George Lyne.

Honey.—For super of honey not in glass or sections. 2nd, bronze medal and 15*s.*—Mr. O. Poole. (There was no first prize.) For glass super of honey—1st, Mr. Wm. Martin; 2nd, ditto; 3rd, Rev. F. Warre. For honey in sectional supers—1st, Mr. J. Walton; 2nd, Mr. Charles Tite. For run or extracted honey—1st, W. Martin; 2nd, J. Walton. For super of honey in frames ready for extract—1st, J. Walton. For largest and best harvest of honey—1st. silver medal, Mr. W. Martin; 2nd, bronze medal, Mr. O. Poole.

Cottagers.—For largest and best super of honey in comb—1st, silver medal, J. Walton; 2nd, bronze medal and 30*s.* W. Martin; 3rd, E. Merrott; 4th, H. Ellingham; 5th, J. Cox. Best super of honey—1st, W. Martin; 2nd, J. Walton; 3rd, W. Martin; 4th, H. Ellingham. For run or extracted honey in glass—1st, W. Martin; 2nd, J. Walton; 3rd, J. Cox. For cake of bees-wax—1st, J. Walton; 2nd, H. Ellingham; 3rd, W. Martin. For bee-feeder—1st, bronze medal, O. Poole. Best super for general use in an apiary—1st and 2nd, bronze medal, C. N. Abbott and James Lee, equal; highly commended, R. Mansfield. Best honey extractor—1st, silver medal, J. Walton; 2nd, bronze medal, O. Poole. New invention to advance the culture of bees—1st, bronze medal, C. N. Abbott. Best collection of natural objects, illustrating the natural history and economy of the honey bee—1st, bronze medal, C. Tite. Most convenient quilt for general use in the apiary—1st, bronze medal, C. N. Abbott.

LINES

FROM A STRAW-SKEP AT WESTON SHOW.
JUST READ THE FEW LINES DOWN BELOW.

Dear friends, do not despise our hive;
You see we bees are all alive;
Our house it does not cost much money,
And yet in it we store our honey.

For three years we've not swarmed, yet lo!
Have sent our honey to the show:
We last year worked in glass so fine;
This year we've stored in box of pine.

Honey in straw is just as good
As that which is produced in wood,
And last year's stores did well compare
At Weston's first great Honey-fair.

This year our boxes make folks stare;
They came from Bucks to Super-Mare;
We are all left alive and well,
And send these lines the news to tell.

Some say that straw skeps are not good,
And praise the hives they make of wood;
But let that be just as it will,
You'll find we work in straw ones still.

Our master plans with ready wit
To save us from the brimstone pit:
Spare us, and tho' we show our sting,
We'll work your will again next spring.

Some hives are good, and some are bad,
Plenty of both are to be had;
Use which your fancy may dictate:
But save us from a cruel fate.

Go where you may, ask who you will,
You'll find diverse opinions still;
For no one yet has found a plan,
To make one hive suit every man.

W. MARTIN, *The Bremen, Wycombe.*

NEW QUAY VISITORS.

During the past few weeks the youngsters who frequent the quays in quest of sugar have had more than the police to annoy them while hunting for sweet things. It has been observed for some time by those engaged in the discharge of sugar cargoes that large swarms of bees visit the sheds in search of food. It has, therefore, been thought that the flowers on the hills, through unfavourable weather, are not sufficient to supply the busy bees with the food they require, and that they have been forced to seek it at the harbours among the sugar, much to the annoyance of many a dirty urchin, whose cheeks with dirt and sugar the bees might be forgiven for mistaking as feeding-ground.—*Greenock Telegraph and Clyde Shipping Gazette, August* 17, 1877.

UNPROFITABLE CUSTOMERS.—On Saturday, Aug. 18, the visitors to Congleton Market were witnesses of a scene which presented the industry of the bee in a new aspect. The stall of a vendor of toffy was invaded by a swarm, who settled upon the sweets, and so completely spread themselves over them that they monopolised the whole stock. Unprofitable as was their patronage, the proprietor of the stall had no alternative but to look on, and make the best of it. On previous Saturdays, visits of a similar kind had been paid by bees, in smaller numbers,—an unnatural thing, at this time of year, when honey should be plentiful in the fields, and ought to be a caution to bee-keepers in the neighbourhood that their bees are starving.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE SMELATOR.

The German bee-keepers, who first used the honey-extractor, have given to it the name of 'Honigschleudermaschine' (twenty-two letters); the English, 'honey-slinger,' 'honey-extractor;' the Americans have two names more, 'melipnt,' 'mell-extractor;' the French bee-keepers, 'mello-extracteur,' 'mellextracteur,' 'mello-turbine;' the Italian, 'smelatore.' The scientists of every language have adopted the same names for every substance, every combination of substance, and every machine. Why not do the same, and adopt the name which best represents the idea?

The Italian word 'smelator' is better adapted than 'extractor.' It is composed of the preposition, *ex*, (out), and *mel* (honey). This word is short, sweet, and to the point. Let every language adopt it.

I send the same proposal to Germany and to France, with hopes that it will be adopted.—CH. DADANT, *United States.*

MOBILISM *v.* FIXISM.

Your correspondent, Mr. Pearson, of Nancy, France, was misinformed when he said in an article headed 'Mobilism *versus* Fixism,' in your July number, page 56, that moveable frames were commonly used in France more than twenty years ago, and *that it is only these ten years that they have been falling into disfavour.* Although living in America, I am French-born, and for nearly ten years have been in regular intercourse with the French bee-keepers: I am therefore well posted as to French bee-keeping. The truth is that, till ten years ago only one kind of moveable frame hive was to be found in France: the Debeauvoys hive, which was unhandy, not to say impossible, and discarded as soon as tried, for its frames were close-fitting, and could not be removed when glued by the bees to the sides of the hive. About nine years ago M. Bastian, now President of the Bee-keepers' Society of Alsace, published a book devoted to modern bee-culture; a few months after, M. L'Abbé published also a small treatise on the same subject. Besides several writers, Messrs. Thierry, Mieg, Dennler, now editor of the bee-keepers' journal of Alsace, Hambach, Peisson, Ch. Dadant, and others, used to write in favour of mobilism in the then only bee-paper of France, *L'Apiculteur*, when its editor, M. Hamet, by his incivility, compelled them to withdraw. They then wrote in a new paper devoted to their ideas, the *Journal des Fermes et des Châteaux*, but the German war and the siege of Paris ruined the editor of this paper, which was afterwards consolidated

with the journal *La Culture de Sedan*, Ch. Rahon publisher, 10 francs per annum, semi-monthly, and this last paper is mainly devoted to bee-culture.

Besides, about seven years ago, a bee-keepers' society, devoted to mobilism, was formed in Bordeaux, and another bee-paper, *Le Rucher*, was established. This monthly periodical, disconnected now with the said society, continues to appear, besides the new organ of the Society, *Le Bulletin de la Société d'Apiculture de la Gironde*. As you see, there are now in France three bee-papers devoted to modern bee-culture, while there were none ten years ago; and while there is only one devoted to fixism, *L'Apiculteur*, whose editor has, last January, enlarged the types used to print it, in order to economise a few francs on every number. Of course, such a curtailing does not prove that this periodical is now as prosperous as it used to be; a number of its subscribers having adopted mobilism and quitted the organ of fixism.

I will add that several books on moveable bee-culture were published within two or three years and found a ready sale, in spite of the abuses heaped on them by Messrs. Collin and Hamet. It is incredible how far the dislike of moveable frames is implanted in the minds of these last-named gentlemen. Furthermore, they fight all which is new in bee-culture, especially if it is presented by a lover of modern bee-culture.

When Dzierzon published his discovery of the parthenogenesis, the above-mentioned bee-writers fought it for years, and with the most pitiable arguments. In the third edition of his *Cours d'Apiculture*, M. Hamet says that the moveable-comb hive is good only as a *jeu de marionnettes* (a game of plaything puppies). In 1868 I wrote an article for his paper, in which I said that, with moveable frames, a bee-keeper would learn more in one year than in thirty years of bee-keeping with fixed combs. M. Hamet rebuked me in a note; but in the fourth edition of his *Cours*, published in 1875, he admits that moveable comb-hives are good for those who wish to learn fast. For several years the honey-extractor was called, by the same editor, *un joujou inutile* (an useless plaything). Yet I find in the *Apiculteur*, for last July, that the same editor advises the use of the honey-extractor to empty combs. For M. Collin the honey-extractor is yet an useless implement, for its name cannot be found in his book *Le Guide*, edition of 1875. In the same book M. Collin says that you cannot exchange a full comb from one hive with a full comb from another. Do you think that a man, having tried, in good faith, the moveable comb system, would write such a daring assertion? I own, in partnership with my son and others, about 600 colonies, and we can exchange any one of the 6000 combs of our hives with every one of the 5999 others. In spite of what they can see in the bee-journals of America and others, Messrs. Hamet and Collin write that the moveable comb hives cannot be used by the producers.

They say that the moveable combs give the foul-brood. They point to Berlepsch as having acknowledged the fact; but the experience of the Italian, French, and American bee-keepers, contradicts this assertion; yet these friends of fixism will continue to spread this erroneous accusation.

In fact these bee-writers are to France what Mr. Pettigrew is to England. They cling to progress to hinder it, till they are compelled to adore what they have abused.

I beg your correspondent henceforth to use his own eyes rather than those of his friend, l'Abbé Collin, and he will see that what exists in France is quite the reverse of what he believes now; for the moveable frame hives are gaining every day the ground which fixism is losing, in spite of the efforts of Messrs. Hamet and Collin to stop progress.—Ch. Dadant, *United States of America.*

SUMMER EXPERIENCE IN SOUTH DEVON.

Began the season with ten good stocks, three in Abbott's bar-frames, the others various skeps, &c. Only one swarm, and that from Abbott's hive, which had about 20 lbs. in a super, and averaging about 3 lbs. a hive from all the others. Mr. Fox and I saw others in the neighbourhood in the same condition, so that I think in the south of Devon it is an unusually bad year. Nevertheless, such is the stimulus the *Bee Journal* and improvements in bee-furniture have given, that bee-keepers will take courage and prepare for better seasons.

Query. Is bee-lotion better than ammonia? as a few days since I suffered for the first time from a bee-sting on the eye.—J. E. A., *Kingsbridge, Devon.*

THE SEASON IN SUSSEX.

Just a few hurried, random lines, with a running pen, for insertion in this month's number of our *Journal* before the time closes. It seems to be admitted, pretty generally, that the past season is much below the average; but so far as your humble servant and varlet scribbler is concerned, the season has been, on the whole, not altogether unfavourable. 'Twere almost like hoping against hope to expect a *very* favourable season for our worshipful fraternity after such a May as the last. I'll never again speak, or write, or in anywise refer to it as 'the merry month!' 'A fico for the phrase,' thou cold, gloomy, ungenial, coquettish May! I would also, my friends, being 'i' the vein,' say something of 'leafy June,' but the phrase is somewhat, or rather it is *very* hackneyed; and, upon mature reflection, last June was anything but 'leafy,' owing to the fierce south-west gale in the previous month, which left the trees in this district bare as in mid-winter, and strewed the highways and byeways with dead leaves as in autumn. 'The times are out of joint.' Leaves were certainly plentiful enough, but unfortunately they were in the wrong place—blowing about promiscuously in the road, instead of singing sedately on the branches. Again I reiterate, 'The times are out of joint.' Summer now hath little of the character of the glorious summers of earlier years. 'Twas surely on one of those Elysian summers that 'the divine Artemus' (as the Sage of Chelsea styles the greatest of modern humourists) wooed in honeyed phrase and won his Betsy Jane—the courtship portrayed in his usual racy manner, as, with one arm round Betsy's sylphlike form, the other on the

fence, or, to quote his own description, 'That carm still nite in Joon, when nary zeffir disturved the sereen silens,' &c. What a picture for a poet or a painter! *Multum in parvo!* 'But what has all this to do with bee-keeping?' ask, not one or two, but all the readers of the staid, sober columns of the *British Bee Journal* in chorus! 'You're an Obstructive, Mr. R.' Well, dear ladies and gentlemen, be it so; but pray do not class me with the Rowdy party! I bow and apologise, humbled much, and plunge *in medias res* at once, without further parley.

Apart from fleeting intervals of sunshine—few and far between, like plums in a workhouse pudding—honey-gathering did not commence here in earnest until the second week in June, after which progress was rapid. About a fortnight later, six of the forwardest supers—or, rather, the combs, and *not* the supers—were put through the extractor, with a net result of 133 lbs. Afterwards the supers were emptied at various times until the close of July. The heaviest single super of the year, a splendid affair, weighed 68 lbs.; the largest comb weighed 8¼ lbs., the heaviest I ever possessed. This super is 17½ in. wide, 16 in. deep, by 10½ in. high. Seeing the bees meant business, I left it untouched until finished. Six hives only filled double supers. The heaviest pair were taken from a box-hive of ten years' standing, weighing 41 lbs. and 33 lbs. respectively. Curiously enough, another hive alongside has not stored more than 7 or 8 lbs. of honey at most in the super; but I am of opinion that the very matronly queen in it is in 'the sere and yellow leaf' of queen-bee-hood; although the former hive has remained untouched for ten years, still it is hardly possible that it is presided over by the *same* queen, as it is now, if not the strongest, at least as strong as any hive in the apiary. Honey, both extracted and in the comb, commands a very high price this year, higher than it has done for a long time past.

I have received numerous complaints, both this season and the last, for recommending the Honey Extractor to my customers. I invariably recommend Mr. Cowan's, as it is the best in the market for those who want a really good, serviceable article. My correspondents go to work in the most approved orthodox fashion, with relays of knives in a great can of hot water, and as fast as one knife becomes clogged with comb and honey plunge it into the water, and use another, dripping wet; and so the process goes on and on, a fresh knife for every comb, until every jar or bottle of honey drawn off contains more or less water from the wet knives. Such honey won't keep. Finding this, they in despair fly to the bottle—the *ink* bottle—and write to the papers: 'Dear Mr. Editor,—Extracted honey won't keep at all.' Of course not! the proportion of water, small though it be, is quite enough to sour it. The moral is—it looks like business, especially for a *litterateur*, to close with a moral—Stick to your extractor and keep your knives dry—at least so far as water is concerned. Water, of course, is all very well in its place—it does for the virtuous quadruped to quench his thirst, as the Good Templars are perpetually telling us—but I have remarked that naughty, thirsty bipeds, not members of the above righteous fraternity, usually quench theirs with just 'a wee dhrap o' the craythur' to flavour it, but for honey it does not do at all.

By-the-by—I take up my pen again—I came across a funny article in the June (I think) number the other day, wherein a wrathful correspondent wished he could get hold of the maker of his bottom-frameless supers 'in order to saw him into supers!' A devout wish, my masters, marry and amen, and suggestive of Falstaff's soliloquy when at the house of that paragon of county justices, Robert Shallow, Esquire. 'If I were sawn into quantities,' began the portly knight. If you were, Sir John, by Jove! what a lot of supers, top-bars and bottom-bars, you would make, to be sure!—Alfred Rusbridge, *Hive Manufactory, Sidlesham, Chichester.*

SEASON IN RENFREWSHIRE.

The continuous rains, swelling out last month to floods, low temperature, and consequent honey barrenness of the present unprecedented season, cause it to rank the very worst bee year of all the writer's experience. In our district very many swarms, uncared for, have already perished; and the singular phenomenon has been far from unusual of cottagers' stocks, which did not swarm at all, opportunely caught crawling out to die of sheer starvation, and that, too, at the very height of summer.

Most of my colonies still stand with their couple, and a few with even four, supers, combed out the few delightful days we were favoured with early in June; and a clerical friend in the neighbourhood showed me quite an extra cross-bred Italian colony with six supers, choke-a-block with bees, over and above ample breeding-space. We are both loth to remove our supers in the hope that when freed from the spell of St. Swithin, a few really fine days would yet work wonders, could such a force of workers be set free to glean the fag-end of the harvest.

In proof of the straits to which our little favourites have been brought, I have sent you a local paper from which you would see that at Greenock our favourites, abandoning all hope from the washed-out secretions of the flowers, have taken to attending the discharge of the sugar-laden ships at the quays, and with kindly intention proffer their services in licking the saccharine-begrimed cheeks of the little urchins intent on the sweetened prey, and they are finding in their winged fellow-plunderers a much more agile and dreaded foe than their old enemy the policeman.*—A Renfrewshire Bee-keeper.

FEEDING WITH OLD HONEY—MELILOT CLOVER.

I have been giving some of last year's honey to a weak swarm in the candied state it is in, and found twenty or thirty dead bees in the feeding-pan. Thinking they were robbers, I gave them a fresh supply, and the same thing occurred again; evidently they were killed by the honey. I have generally boiled old honey with sugar, and no ill effects ensued.

The blossom of the yellow variety of melilot

* We have given the extract alluded to on p. 86.—Ed.

clover has been splendid this year, and remarkably attractive to the bees. It blossoms three weeks before the white variety, of which I have some growing side by side with it. The white is eight feet high; the yellow, six feet, and more bushy. The bees took no notice of phacelia, but the humble-bees were very attentive to it. Some years ago I sowed some buckwheat, as I had understood the bees were fond of it, but none but humble-bees paid it any attention.—P., *of Warwick.*

FRENCH SUPERING.

In reference to the method of supering advocated by Mr. Pearson, of Nancy, in France, I think it the poorest I have ever seen introduced, or even hinted at, especially for this country, where we usually have only about three weeks, and often only about fourteen days, in which to get our supers filled. Therefore, if the bees were inclined to fill them, they could not, on account of the brood; and if they were delayed until the brood was all hatched, the honey-comb would not be fit for exhibition or for sale, or for table use in this country, and could only be made useful as run, or extracted honey. It is a pity when it is necessary to use the extractor with supers.—T. S., *Middleton, in Teesdale.*

SUMMER FEEDING.

I have just weighed some of my hives and am sadly disappointed with the result, but from what I hear on all sides, none of the bees have done well here this year. We have had much cold, dull weather and little sun. The weight is so little that I do not know whether it will do to take any honey from them at all.

No. 1 hive, Neighbour's Cottage, only has 24lbs.—honey, comb, and bees. This was a stock hive of three years, driven last September into this hive, and on the 2nd October it weighed 22lbs., so is now only 2lbs. better than then. No. 2. A cast of second week in June last, in a straw skep, and now only weighs 4lbs—bees, comb, and honey. No. 3. A swarm of last year, in a Neighbour's hive, weighs 26lbs.—honey, comb, and bees. This time last year it had 42lbs. instead of 26lbs. No. 4. In an Abbott Standard Hive: a swarm of 31st May last. This weighs 31lbs. of honey, bees, and comb. No. 5. A cast of June 11 last, in Hale's bar-frame hive; weighed 16lbs. of bees, honey, and comb.

Some of my friends tell me that feeding bees in the summer is a bad plan and makes them not care to work for themselves. This year, in the bad weather, I have fed some of my bees, and have thought that might, perhaps, be the cause of such bad results.

Nos. 1 and 3 hives I have fed a good deal, and the result is bad without doubt. No. 4, in Abbott's hive, I have fed very little, and that is the best weight of the five I weighed. But No. 5 I have also fed a good deal, while No. 2 I have not fed at all, and these two were casts of the same size on the same day. One (No. 5) is a bar-frame hive, and No. 2 is a straw skep; both these were in the same part of my garden, placed the same way within a yard of each other. The one I fed weighs 16lbs., that I did not feed only 4lbs. This is much in favour of feeding, while in the case of No. 1 and 3 fed much, against No. 4 fed very little indeed, feeding seems to have done harm, for Nos. 1 and 3 had their hives full of comb and some honey before No. 4 started to build; they only had to collect honey, No. 4 to make comb and collect honey, and yet No. 4 has now got the most weight by 5lbs. over the highest of the other two. Can you account for this and tell me if feeding in bad weather in the summer is a good or bad plan? I have given Nos. 1 and 3 hives about 6½lbs. of sugar each, made up into proper food, No. 5, 4lbs., and No. 4, 1lbs. R. H. Taunton.

P.S.—Do you think I can take honey from any of the hives, or drive them to new hives, and then feed up for the winter?

[Judicious feeding during the months when bees are active is the backbone of the science of apiculture, and it may be taken as a rule that during the spring, summer, and autumn months, it is sound policy to feed the bees on the evening of every day during which they have been unable to gather honey for themselves; and during a continuance of bad weather they should be fed, as we have so often urged, 'gently and continuously.' The quantity per day may vary from an ounce to a pound per hive, according to the known circumstances of each particular case. The prejudice against feeding bees in summer is founded on the false premises, that being 'summer birds,' they, like the swallows, can get their own living: but sometimes it is not so. All experienced bee-keepers know that two or three days of bad weather in the spring will often cause a new swarm to starve; and when stocks are breeding up in preparation for swarming how few days of bad weather are necessary to cause them to throw out their brood and eat up their eggs and larvæ, and so stop the formation of new mouths in such a hungry time? Feeding, however, will enable stocks and swarms to live over the 'uncannie' time without injury, and render them full of vigour for the better days that are always 'coming.'—Ed. *B. B. J.*]

PASTURAGE FOR BEES.—No. IV.

(*Continued from page* 17.)

Buckwheat (*Polygonum fagopyrum*). This seed should be sown from May to July, broadcast, using about four pecks per acre. It succeeds the best on a dry, rich, sandy loam. It flowers in seven or eight weeks after sowing, and in some seasons it yields an immense quantity of honey; some of the German writers say, 'One acre of buckwheat will yield fourteen pounds of honey per day, for a considerable time:' but the honey is of a very inferior quality both in taste and colour. Bees only work on it in the morning; and when it is out in full bloom there is scarcely a bee to be found working on any other flower until about ten o'clock on bright days. On cloudy days I have seen them working in swarms on buckwheat until eleven or twelve o'clock, but in the afternoon only a few stray bees are seen working on it. Buckwheat keeps the bees breeding until frost cuts it down, and the bees go into winter quarters, with the hives filled with young bees, and these are the only bees that survive the spring.

Buckwheat is a very valuable crop, as in addition to the very large amount of honey it yields, the seeds are used to make the black bread in France, and to

feed all kinds of farm-stock, poultry, &c., and if deeply ploughed under when it is in bloom it will rapidly enrich the soil.

The silver-hull buckwheat is the best, as it is a very productive, and quite early sort, one pound of seed has produced seven pecks. The great bee-master, Dzierzon, says, 'In the stubble of winter grain, buckwheat might be sown, whereby ample forage would be secured to the bees late in the season, and a remunerating crop of grain garnered besides.' This plant, growing so rapidly, and maturing so soon, so productive in favourable seasons, and so well adapted to cleanse the land, certainly deserves more attention from farmers than it receives, and its more frequent and general culture would greatly enhance the profits of bee-keeping. Its long-continued and frequently-renewed blossoms yield honey so abundantly, that a populous colony may easily collect fifty pounds in two weeks if the weather is favourable. There are about 1500 seeds in one ounce.

Mustard (*Sinapis nigra*). This annual is the great yellow weed of our corn-fields, and if it was sown in successive months it would yield forage for bees all the working season and until the frost cut it down. The Chinese variety (*Sinapis chinensis*) produces more than double the quantity of flowers and seed of either the black or white mustard. If patches of ground be sown at suitable intervals of time, from early spring till near the close of summer, our bees will be constantly occupied in collecting honey during these periods when they are usually idle for the want of such supplies as will be thus furnished. The honey which it produces is of a very beautiful light yellow colour, is of a fine flavour, and always commands the highest market price. The seed may be sown very early in the spring in shallow drills, wide enough for the cultivator, using about eight pounds per acre; or broadcast, using about twenty pounds per acre. For seed, it should not be sown later than the end of June. It is well adapted to most soils, and does not seem to be affected by atmospheric changes. When ripe, the seed does not shell out by the wind, and may be harvested at leisure; and is peculiarly adapted for grinding into the popular condiment, always commands a ready sale and good price, and will insure sufficient income to repay for its cultivation. It is highly prized, when young, as a salad, or as greens; the seed is also eaten by poultry. There are about 3600 seeds in one ounce.—William Carr, *Newton Heath Apiary, near Manchester.*

(To be continued.)

SAGACITY OF BEES.

A 'Sexagenarian,' writing in *Fraser's Magazine* for August on 'Mountaineering,' tells of a labouring man whom he met with, 'sitting in his coarse but clean blouse by the wayside, breaking stones for metalling the road between Leysin and Sepey. He and I that day walked for seven hours shoulder to shoulder, all the while conversing, as I found, in an agreeable manner, but without being at all surprised at the discovery. As we went on talking on this subject and on that, I chanced to notice that the bees were, as I thought, rather high up on the alps. "If," said he, changing his tone to that of one who is about to communicate something of no ordinary interest, "if there is no wind on the Tour d'Ay we shall find some bees up there. And their intelligence is as great as their industry. I have known one, when I have been on the mountain-top, and the wind has overtaken it there, come to me, and place itself laden with bee-bread on my shoulder." And here he gently laid his finger on the spot with a smile. Then he went on to say that it had remained on his shoulder till he had brought it down out of the reach of the wind: and that he had heard of instances in which when the shoulder the little insect had settled on was that of its master, it would remain there, if he were descending in the direction of his home, till it had been brought within sight of its hive.'

ACCIDENTAL DRONE TRAP.

A strong stock refused to occupy a large glass super placed on it in June, though the bars had been carefully waxed. So I drove them in the manner practised by one of your correspondents, placing a sheet of $\frac{3}{16}$ zinc between the hive and super. For six hours they seemed disposed to build comb, but to my surprise the next morning, all were down in the hive. I feel sure the queen was in the super—could it have been so? If so, she found her way through the zinc.* The drones, of course, were unable to return, and were executed.—S. W. D. Fox, *Cheshire.*

TWO QUEENS IN THE SAME HIVE.

I cannot tell how delighted I was a year ago to witness for the first time the return of a young queen to her hive with the distinct mark of fertilisation on her. Another of my long-cherished hopes has been gratified this week: I have witnessed the rare sight of two queens living in the same hive

While exhibiting the interior of a bar-frame hive to a visitor on Wednesday, I was surprised to find that, while the fertile young queen introduced a few weeks ago was attending as usual to her work of egg-laying, there were on the combs three apparently ripe royal cells.

There was evidently no intention of swarming, as the stock, itself a swarm, was not at all a strong one and had not filled its hive with comb. I cut out two of the cells for a queenless skep, and next day found a princess gnawing her way out of one of these. I immediately examined the other hive and found the remaining cell empty and properly uncapped. Not having time to examine further, I left it till to-day (Saturday), when I found that both mother and daughter were alive and well, though on different combs. As I was in immediate want of a spare queen I had to deny myself the pleasure of

* Perforated zinc that will retain drones will not always prevent the passage of queens. That of $\frac{3}{16}$ calibre is too large, as a rule, to restrain queens, and that smaller size, commonly known as 'No. 12 hole,' sometimes permits their passing through, as we have found in our experiments with the '*new idea sections.* See also the remarks of our Correspondent, Mr. J. Walton, in our last Number, p. 75.—Ed. *B. B. J.*

leaving the matter to the test of experiment, so I removed the parent queen to head a new colony. I cannot think this was a case of rearing a young queen to supersede an old or defective one, as the parent queen was reared this season and laid well up to this very day. What then? *—W. Raitt, *Lift-by-Dundee, July 28th.*

SWARMING FROM SUPERS.

I see that another correspondent has returned this month to the subject of hives swarming after they have been supered; on which subject you gave a very clear answer to a query at p. 59 of the July number.

I do not think myself that *the amount* of super room given to a hive will ever affect its swarming either one way or the other, unless the extension of the hive be made *in time*, *i. e.* before the queen had made her dispositions for going off with a swarm which she will do ten or twelve days beforehand, by depositing eggs in the royal cells.† If supers be added after this be done, the swarm will go off all the same; if, however, the extra space be given before she has made this arrangement, and if it be sufficient, in four times out of five it will prevent the swarm. Is it not so? I have ventured these few words, as your reply rather dealt with what had to be done to remedy the evil, when a swarm has left a supered hive.

To prevent second swarms in this part of the world, we place the first swarm as soon as it is hived and quiet, in the place of the stock hive, and the stock in the vacant place in the apiary. Do you do the same at home?‡ This has the double advantage of strengthening the swarm with the bees returning from the fields, and of weakening the stock hive, so as to prevent it throwing off a second swarm.

In some parts of central France where there are huge apiaries, to prevent second swarms they cut the heads off the sealed drones' cells in the stock hive the same day as the swarm goes out. This is said to be an effectual prevention.

I see by what you say at p. 65 that the honey season in England has been as disastrous as it has been here. Instead of taking honey, I am now just thinking of beginning to feed my bees, in order to induce breeding. There is no honey in this part of the country this year.—G. F. Pearson, *Nancy*

* Who is to say what might have happened?—the probability is, that the young queen, but just emerged, had not come into contact with her mother, or there would have been either a fight, or a division of the colony by swarming. We think the evidences favour the view that swarming was contemplated.—Ed. *B. B. J.*

† This statement is directly adverse to our experience, and cannot be reconciled to the fact that a queen would, if she could, destroy all the royal cells in the hive, and prevent the rearing of rivals to herself. We venture to assert, that queens never lay eggs in royal cells, and challenge proof to the contrary.—Ed. *B. B. J.*

‡ It is the common practice to place swarms on the stands of the parent stocks, but it often causes mischief, as it takes from the latter the whole of the flying drones, at the very time when those lusty heat-producers are most required in the hive.—Ed. *B. B. J.*

NARCOTIC EFFECTS OF THE FLOWER AGRIMONY ON BEES.

From 'L'Apiculteur,' Aug. 1877, translated by W. Geo. Duncan.

'Everybody knows the agrimony, a perennial herbaceous plant of the rose tribe, which grows spontaneously on downs and by the way-side. This plant though neglected now-a-days was much employed formerly as a medicine, its astringent qualities making it very useful as a gargle for sore throat. It is also a tonic and a cure for worms. But most people are not aware that the flower of the agrimony has the power of charming, sending to sleep, or intoxicating bees so far as to render them completely inoffensive, and is thus able advantageously to replace fumigation, when it is necessary to examine or manipulate the hives. This secret was known and was transmitted from father to son in an old family of bee-keepers in Fontaine-Luyères (Aube, France), of whom the last member revealed it to Louis Rouillot, a weaver in Onjon, advising him strongly to keep the secret to himself, lest evil-minded persons should make use of it in order more easily to rob the hives which are left out in the fields while clover and buckwheat are in flower. We have received these details from M. A. Tarin, an old friend of Louis Rouillot. But as we think there are more real advantages than serious drawbacks in making this secret known to everybody, we do not hesitate to divulge it.'—*Le Nord Est.*

The editor of *l'Apiculteur* remarks:—

'As it is given, this receipt leaves much to be desired with regard to the manner of employment. If the flower agrimony charms the bees when the bee-keeper shows it to them, it ought also to charm them in the fields, and on the roads where the bees go to forage. Must one make a bouquet of this flower and carry it at the button-hole, or must one rub certain parts of the body with it? We advise the reader to seek for the method of application, which apparently the old friend of Louis Rouillot has forgotten to make known, or which Louis himself has forgotten to reveal to his friend.'

'Agrimony (*Agrimonia eupatoria*) is known by its full-grown leaves, hairy above and ash-coloured green below, irregularly pinnated, with 5 to 9 obtuse oval segments deeply serrated, mixed with accessory segments whole or cut; its stalk is about 3 feet high, it is straight, rather rough, unusually single, hairy, leaved in its lower part, and is terminated by a long and fringed spike of yellow flowers with five petals attached to a turbinated calyx, with a soft tubule becoming almost woody at maturity and bristling at the top with hooked and subulate prickles.

'Agrimony is in France much used in domestic and veterinary medicine. It is also a native in Britain, where it flowers in June and July. It is common in pastures, the borders of woods, and by the road-side. It is an astringent and bitter plant, of which goats and sheep alone eat the leaves. An excellent gargle against inflammation of the throat is made by adding 30 grammes (2 oz.) of the dried plant as a decoction, to 500 grammes (22 oz.) of water with a little honey and vinegar. It is also recommended for liver complaints and blood-spitting.

The decoction of the leaves is a cure for worms, and the Cossacks of Little Russia are said to make use of it against worms in cattle.

'Sometimes agrimony is cultivated as an ornamental plant.'

PUBLIC DUEL BETWEEN TWO QUEENS.

During the late exhibition of the Caledonian Apiarian Society at Edinburgh an interesting and very unexpected opportunity occurred of witnessing a combat between an Italian and a British queen. A stock of ordinary bees was exhibited by the indefatigable Honorary Secretary of the Society—Mr. Bennett—in an unicomb observatory hive, which on examination was thought to possess no queen, as she could not be discovered, nor any eggs or brood, but a large number of drones were present. I had several recently imported Italian queens, which I had brought with me for sale, and it was suggested that I should supply the supposed deficiency. I accordingly opened one of the boxes and let the queen run in at a hole on the top of the hive. This was done in the evening, and she appeared to be well received. The hive was covered up, and on making an inspection the next morning I was surprised to find a very dark *Italian* queen, as I thought. A few hours later, however, revealed the mistake, for I was fortunate in having before me rather an exciting scene—no less than a mortal conflict raging between the real Italian queen (which by the way was bright in colour) and the queen of the hive; for although I had concluded that the stock was queenless, there was one present in the hive all the while, and this was the one taken to be the dark Italian. She was, however, small, and no doubt unfertilised, which might account for the number of drones. I was able to summon some of my brother bee-keepers and other visitors to witness (some, no doubt, for the first time) the combat between the rivals. At the period of our observation the two queens had their bodies curled towards each other, and in a few minutes the English, or rather the Scotch queen dropped to the bottom of the hive and was seen no more. The Italian mother, who was greatly excited and evidently much upset, reigned supreme, the monarch of the hive, and during the remainder of the show pursued her duties of egg-laying. The drones, however, received very different treatment. The queen being fertilised, the bees soon discovered that their services were not required, and the worker bees commenced to make their short remaining tenour of existence one of torment and worry, which very much added to the interest and curiosity of the spectators.—Alfred Neighbour.

BEE LAW.

Seeing an article in the *Journal* of last month on bee law, I enclose a copy of an article I read some few years since, written by Alfred George Renshaw, Doctors' Commons, London:—

'Bees are *feræ naturæ*, but when hived and reclaimed, a man may have a qualified property in them by the law of nature as well as by the civil law.'—(*Puff.* c. iv. 6, s. 5. *Inst.* ii. 7, 14.)

'Though a swarm,' says Blackstone, 'lights upon my tree, I have no more property in them until I have hived them, than I have in the birds which make their nests thereon; and therefore if another hives them he shall be the proprietor, but a swarm which flies from and out of my hive are mine as long as I can keep them in sight and have power to pursue them, and in these circumstances no one else is entitled to take them. Hence the origin among villagers of pursuing a swarm with a bell or clamour of pans, in order to inform others, that the followers are possessors of the swarms.'—J. E. Adams.

Echoes from the Hives.

Ashley, by Coupar Angus, N.B., July 21st.—'In August last I had six swarms of bees, and knowing nothing about their management, I requested a bookseller to get a good bee-book for me, but it was a long time before I got it, and in the meantime I had mine suffocated, except what I was to keep. However, my book came, and then I was sorry for the mistake I had made, so I began in the long winter evenings and made four frame-hives from a pattern given; and having heard a good deal about the *British Bee Journal*, I determined to get it, but I didn't know where, so I have been procuring it through a bookseller. There is one thing I would like to ask you about. I had a second swarm of bees, which I put in a frame-hive on June 25th, and though it is about four weeks since, there are no eggs laid yet in the combs; so if you would kindly put an answer in the *Journal*, you would oblige.'—C. S.

[The second swarm had a young queen, as is usual, but judging from the absence of brood for so long a time, we should say she has been lost, and the swarm is queenless and will come to grief.—Ed.]

Hoden Cross, Old Hill, July 31st.—'I do not find that restricting the quantity of drone-comb in a hive of necessity restricts the breeding of drones. I have had a large breadth of worker-comb laid with drone eggs in each of my boxes this year, hatching out of course drones but little larger than workers, and in many cases imperfect as to their wings. This does not square with the theory that the queen lays drone eggs in drone cells because the large diameter of the cells fails to compress the spermatheca. I am inclined to think that the laying of drone eggs is quite voluntary on the part of the queen. When I can spare a little time, I am hoping to conduct some careful experiments with a view of settling this matter.'—W. B.

[This augurs strongly that either the hive has become possessed of an infertile queen or a so-called 'fertile worker.' The theory questioned imputes that the size of the cell governs the sex, and although many have disputed the point, none have ever, to our knowledge, given a fertilised queen credit for the ability to lay drone and worker eggs at pleasure in worker comb. Suppose we fight on the other side, and fill a hive with drone cells only, how many worker bees would be bred in them by a swarm after the first thousand eggs had been laid?—Ed.]

Killin, Perthshire, August 22nd.—'I always intended to give you an account of bee-keeping in this quarter as soon as the honey season would end; but when that will be, as it has not begun yet, I cannot tell. It has been the worst year for bees and honey that is remembered here; the spring and summer, also, have been wet and cold. About the middle of June we had four dry and very warm days, but the nights were very cold, and some of them frosty. During these days most of the bees hereabout swarmed—many of them came off and returned to the old hive; and although the weather was very bad for three weeks after, most of them sent off second swarms. Well, what is to become of these swarms, and, indeed, the old stocks? They have not been 'fed,' and their hives are not half full of combs, so I am afraid their

days are numbered. None of *mine* came off of their own accord, but on the 18th of June, thinking the weather was fairly settled, I took off my first swarm; but on the 20th we had a fearful storm of wind and rain, and from then till now we have had very little sunshine, and only one day without *some* rain. On the 4th of July (the weather promising better and my hives being quite ready for swarming) I swarmed the remainder (four); but, as before mentioned, the weather continued bad, so to have them ready for the heather I continued feeding. Three of the swarms I fed up till they filled their hives with combs; but the heather is now almost out of blossom, and there has not been one pound of honey got off it yet, for we have had a continuation of rain and cold since it began to bloom. I have been feeding since the 1st of May, and will need to put two together and feed them up for winter. You, south of Derby, may think we could have done better, but it is impossible to take the breeks off a Highlandman.'—JOHN WOOD.

Nenagh, Ireland.—'I find bee-keeping about here very much neglected; although the country is very fine and bee pasturage good, there being plenty of heather. The skeps usually used are lofty, which certainly have one advantage, viz., that in transferring the combs fill the frames from top to bottom; stocks are full of bees, and strong, but all I have examined have very little honey in them.—WM. N. GRIFFIN.

Cassilis House, Ayr, N.B.—'I am entirely at a loss what to do with my bees, and would like some advice and comfort from you by post—envelope enclosed. We have had a wretched season: a cold miserable spring, and really only three or four days of summer, about the middle of June. Since then it has rained more or less every day—for the last week constantly. Very little honey was made in supers. There was no swarming. There could not be much honey stored, and what there was the bees have been using for some time; so they are reduced very low. I propose to give them honey, of which I have some from last year. Please tell me if I should give it in a good quantity at a time, to allow them to store it—as, I presume, they would—or whether it would be better to give it in small quantities at a time. Bee-keeping has received a shock about here which it will not recover for a very long time, because so many hives have been lost or starved.'—R. D. F.

[NOTE.—There is only the very poor consolation that the state of the apiary is due to the season, and is not caused by mismanagement, and that almost everywhere it is the same. We would fill one or two pints of food (syrup, not honey of a former year) rapidly, and afterwards give it to them gently, to ensure the necessary late breeding of bees.—ED.]

Highlands, Emsworth, Hants.—I have been as unfortunate this year with honey as the rest of your correspondents.—G. P. M.

Queries and Replies.

QUERY No. 217.—Will you in your next number be so good as to tell me whether it was right this August, in the following case, to feed one of my hives? The hive sent forth in the spring a good swarm. Seeing very few bees after this about the entrance I turned up the hive to see what was the matter. I found it quite filled with dark-coloured comb, but very nearly all the cells were empty. I hope you have had a good honey season. —C. P.

REPLY TO QUERY No. 217.—The hive having swarmed in the spring, and having no brood in August implies that it is without a queen, probably through its natural successor having been lost on her wedding flight. Feeding, in that case, would do but little good—the best remedy is one of our own invention, viz., exchange of populations with a fairly strong hive. Drive all the bees out of both into separate skeps; change the places of the hives, and let the queenless bees run into the brood combs of the strong colony, and the swarm with the queen to the empty combs of the queenless bees. The latter will soon raise a queen from the brood already in their hive, and the former will as rapidly fill their empty combs with brood. Feeding should then be resorted to, to aid the broodless hive.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

THE NIMBLE SHILLING.—Some persons are very slow in learning that the six shilling a-year subscription to the *Journal* is payable in Advance! 'A wise son maketh a glad father,' and a prompt paying subscriber maketh ye editor to laugh joyously; 'Better a dry morsel and quietness therewith,' than a long list of subscribers who cheat the publisher.

POSTAL DEFALCATIONS.—We very much regret the numerous losses of our *Journal* in the post, particularly as it leads to the unpleasant conclusion that we have voluntarily declined to send it. Complaints are treated with a stereotyped reply, and we get no redress. We trust all friends not receiving their *Journal* by the second day in the month, will not wait over the third without writing for a duplicate copy.

A. G. R.—*Bees in a Church.*—When bees have once effected a lodgment in a building it is useless expelling them, except as a temporary measure, unless every vestige of their comb and propolis be eradicated, and the place sealed against them; otherwise in a future year the odour will attract other bees, who will adopt the position, and recurring trouble will be the consequence. This is the condition of things at the church mentioned.

A. L. P.—*Ants in hives* consume food if they can get it, and probably eggs also. Their ingress is easily prevented by greasing the legs of the bee-stand, or by setting the feet of the stand in pot saucers, filling the same with water; also (it is said) by making a chalk mark round the legs or stand. Ants cannot travel over either of these impediments.

V. E. H.—The double frame of extractor is intended for holding the combs of skeps for emptying when transferring. Super combs of three inches in thickness would be crushed into fragments, though the revolutions of the extractor be ever so gentle. The brood cells of the stock hive being entirely empty, indicates queenlessness—the young queen (after the swarming) having most probably been lost on her wedding tour.

MR. MOSES NEVILLE, of Hollins Grove, Over Darwin, Lancashire, will be glad to have the addresses of some Lancashire bee-keepers, with whom to correspond on matters pertaining to bee-culture. We always decline to give addresses, but are willing to make such wishes public.

NORTHERN.—The transferring may be done in October, if you can find sufficient comb to fill up the hive. Comb-building in autumn is very exhaustive work. If you want bees to fill a hive with comb, you must unite those of two or three driven stocks into one, and feed liberally.

JAMES COCK (no address).—If you will send your address, we prefer to send you our Leaflet on 'Driving' rather than repeat the description of 'the best way to drive bees from a straw hive.' Repetition-repeated would be too tiresome for the generality of our readers.

*** *Several interesting communications are in type, which we hope to insert next month.*

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Second Great Annual Exhibition of Honey, Bees, Hives, &c.,

AND

FIRST HONEY FAIR,

ALSO

PRACTICAL APIARIAN MANIPULATIONS,

To be held at GRANTHAM, on Tuesday, 11th September, 1877.

SCHEDULE OF PRIZES:

Class.

BEES.

1. For the best Stock, or Specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive. 20/0, 10/0, and 5/0
2. For the best Stock, or Specimen of English Bees, to be exhibited with the Queen in an Observatory Hive. 10/0, 7/6, and 5/0
3. For the best Stock, or Specimen of any species or distinct variety of Honey Bees, other than Ligurians, or the British Black Bees ... ... 20/0, 10/0, and 5/0

HONEY.

4. For the largest and best Supers of Honey, the produce of one Hive ... 20/0, 15/0, 10/0, 7/6, 5/0, and 2/6
5. For the best Glass Super, over 30 lbs. nett weight ... ... 20/0, 15/0, and 10/0
6. For the best Glass Super, under 30 lbs. nett weight ... ... 15/0, 12/6, 10/0, 7/6, 5/0, and 2/6

SPECIAL PRIZE, Presented by S. F. CLUTTEN, Esq., Whittingham Hall, Fressingfield, Norfolk.
A COMPLETE BAR-FRAME HIVE for the best and largest Super of Honey exhibited in Class 4, 5, or 6, by a Cottager, *who shall be a Member of the Association.*

7. For the best Wood, or Wood in combination with either Glass or Straw, Super of Honey. 15/0, 12/6, 10/0, 7/6, 5/0, and 2/6
8. For the best Straw Super ... ... 10/0, 7/6, 5/0, and 2/6

SPECIAL PRIZE, Presented by Messrs. W. & T. SELLS, of Uffington.
A STOCK OF BEES for the best exhibit in Class 7 or 8, by a Cottager, *who shall be a Member of the Association.*

9. For the best Glass of Extracted or Run Honey, of not less than 5 lbs. nett weight; quality to be the chief point of excellence ... ... 10/0, 7/6, 5/0, and 2/6
10. For the best and largest exhibition of Extracted or Run Honey, in Glass or other Jars. 20/0, 15/0, 12/6, 10/0, 7/6, & 5/0

SPECIAL PRIZE, Presented by Mr. R R. GODFREY, Grantham.
A HONEY SLINGER, for the best exhibit in Classes 9 or 10, by a Cottager, *who shall be a Member of the Association.*

SILVER CUP.

THE SILVER CUP OF THE ASSOCIATION, open to Members only, for the best and largest exhibition, in all or any of the Honey Classes, of Honey taken without destroying the Bees. The Cup to become the property of the Member who shall Win it THREE TIMES.

11. For the finest sample of pure Bees' Wax, in cakes of not less than 1 lb. ... ... 5/0 and 2/6
12. For the best Liqueur, Wine, or Mead, made from Honey, with the recipe attached ... 15/0, 10/0, and 5/0

All Honey must be the bonâ fide property of the Exhibitor, gathered by his or her Bees in the natural way this year.

HIVES.

13. For the best Complete Hive, on the Moveable Comb principle ... ... 20/0, 10/0, and 5/0
14. For the best and cheapest Complete Hive, on the Moveable Comb principle ... ... 15/0, 10/0, 7/6, and 5/0
15. For the best and cheapest Straw Skep of any description ... ... 7/6, 5/0, and 2/6
16. For the best and cheapest Supers for general use in an Apiary ... ... 10/0, 5/0, and 2/6
17. For the best Honey Extractor. Portability and cheapness to be considered ... ... 20/0, 10/0, and 5/0
18. For the best and largest Collection of Hives, Bee Furniture, and Apiculturist's necessaries 30/0, 20/0, and 10/0

Exhibitors must guarantee to supply any number of Hives, &c., at the prices quoted.

19. For the best and most interesting Collection of Natural Objects connected with Apiculture, and illustrating the Natural History and Economy of the Honey Bee ... ... 20/0, 15/0, and 10/0

RULES.

EVERY intending Exhibitor must send his Name and Address, enclosing Entrance Fee to the Treasurer on or before, September 4th, 1877.

Entrance Fees.—For any number of Exhibits in either of Classes Nos. 1, 2, 3, 13, 14, 16, 17, 18, and 19. 2s. for each Class. In all other Classes, 1s. for each Class.

Entry Forms will be supplied on application to the Treasurer, or forwarded on receipt of a stamped envelope.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 54. Vol. V.] OCTOBER, 1877. [Published Monthly.]

Editorial, Notices, &c.

OCTOBER.

With the advent of the present month it may fairly be concluded that the honey season is passed, for except where ivy abounds and blossoms freely, and the weather is sufficiently fine to enable the bees to gather its secretions, there will be no source of further supply worth naming.

There may be here and there a remnant of heather, and late flowering plants, grown for the purpose, may yet give forth a remembrance of their goodness, but as a whole 'the harvest is past, and the summer is ended,' and we have only experiences to record. Honey-harvest, in the true sense of the word, there has been none. In the best localities there have not, as a rule, been more than two, or at most three consecutive weeks, during which bees could gather more than their in-door economy required for immediate consumption, and these were broken by intervals when they could not stir abroad, so that the outcome of the season has, generally, been very poor in honey, and sparse in swarms. We, as the chief promoters of bee-culture in this country, deeply regret that we are in honour compelled to record these facts; but truthfulness will not damp the ardour of the tried bee-keeper, and will not injure the cause in the eyes of those intending to begin, for it is better for them to know that bad seasons are possible, and that all is not so *couleur de rose* as some who write so prettily of bees and bee-keeping would have them believe.

The past month has brought us many letters detailing experiences that have been far from satisfactory; and only from Hampshire has there appeared any really cheering intelligence. There, it appears, the moors or downs are covered for thousands of acres with that excellent bee-plant, *Trifolium incarnatum*, which, when in bloom, affords such immense supplies of honey, that a very few days of fine weather will enable bees that have been kept strong in numbers to make fresh headway, and lay up a surplus for winter store, or for the use of their careful owners.

FEEDING FOR WINTER.

In all cases where honey has been taken from bees it behoves the bee-keeper to look into the hives, and note their condition as regard brood and stores. Judging by weight alone is not sufficient, but is, in fact, most fallible. The bee-keeper should be assured by positive evidence that each hive contains from ten to fifteen pounds of liquid sweets, which should be given in time to enable the bees to evaporate the excessive moisture from it, and seal it over. This is an oft-told tale, but repetition appears to be necessary, for so few remember its necessity. When large quantities of food are given at once, the bees store it wherever there is most convenience at the time, often blocking up the cells in the centre of the brood-nest; whereas, if given sparingly and continuously, the queen will be stimulated to increased breeding, and young bees which will live will take the place of those already old and nearly worn-out with labour.

Only those whose bees are in bar-frame hives, and who are therefore able to inspect the combs before packing up the bees for the winter, can be aware of the danger incurred by rapid feeding in autumn. We have inspected hives in which the combs that once formed the brood-nest were filled almost to the bottom with syrup, the major parts of which were unsealed; there were a few sealed and some unsealed brood-cells, but as is common at such times, there were not nearly sufficient bees to keep the whole mass warm if a cold 'snap' should set in, for the bees would be compelled to evacuate the spaces between combs which would be only comparable to walls of marble.

In every case we separated the solid combs and introduced others quite empty, in which the bees could find room to pack themselves, and form a heat-producing, as well as a heat-economising body: and we recommend our readers to do likewise.

WORK FOR THE MONTH.

Examine all stocks, and look out for foul brood, wax-worms and moths, and any signs of dysentery, and exterminate them. The first by stamping out, the second by killing, and

the third by slinging out every drop of unsealed honey and syrup; for it is in these that the causes of dysentery lie. Destroy all wasps' nests, and thereby prevent the forthcoming of perhaps many hundreds of queens in the following spring. A gill of turpentine poured into the entrance of a wasps' nest will destroy its occupants. The entrance, however, should be firmly closed with a clod of earth.

Melt up all old combs that are not to be preserved for future use, and thus prevent the breeding of wax-moth. Narrow the entrances of all hives so that only two bees can pass; do this in time, as it may prevent robbing and the first sudden effects of a sudden, severe frost. At the same time pay great attention to ventilation at the top of the hive; what is required is not a draught through, but a means by which the vapours of the hive can pass away; and this implies that a means of escape from the upper part, or roof of the hive, must be provided, or the moisture will collect and condense therein, and turn the whole concern into a mouldy mass of 'marine stores.' Take every precaution to keep the hive protected from rain and snow; a hive may become wet in autumn through a trifling omission, and may have no chance of drying during the whole winter.

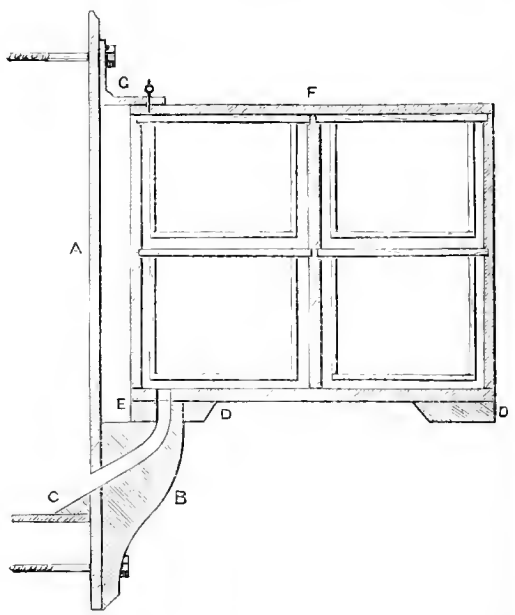
Last year it rained almost incessantly for several weeks, and it may do so again; and in such weather bee-manipulation is impossible. It is a good thing to be wise, but to be safe, 'one should be wise in time.'

ABBOTT'S NEW OBSERVATORY HIVE.

The great objections to the use of observatory hives, as hitherto made, are their clumsiness when in use, the great space they occupy, and the difficulty they have of ingress and egress by the bees. Up to the time of the present invention, a working observatory hive, containing four frames, could only be turned about on its centre where it was most insecurely pivoted, and where it occupied a permanent table of about three feet diameter, and to and from which the bees had to crawl through a passage of about two feet in length in making their journeys for provender. Every one who has used hives of that kind will admit the faults here set forth against them, and will agree that the long passage acted greatly to the detriment of the bees, since it took almost as long for them to crawl to and from the hive as it would for them to fly a mile to or from their hunting-grounds, beside which the labour was far more distressing to them. Then, again, being in the middle of a table, usually near a window, there was great danger of accident; and the means required to keep the bees warm rendered the whole thing an unsightly window-ornament, so that many have been deterred from adopting, during even summer-time, this best and most delightful means of studying the habits of bees and the wonders of their domestic economy.

As in practical working, nothing more hinders the advancement of bee culture than inconvenient hives, so do inconvenient or dangerous observatories prevent the study of the bee, and only those who have kept them can tell of the immense interest created wherever one has been established. Gardeners, villagers, and visitors, are equally interested; and the setting up of an observatory hive in a village will do more to induce the cottage bee-keeper to abandon the old method of bee murder than any amount of lecturing or argument.

Having pointed out the disadvantages of the old style of observatory, we will now describe the improvements which we consider will in the main remove the objections to their more general adoption. In the first place, then, we do not require a table, as our hive will

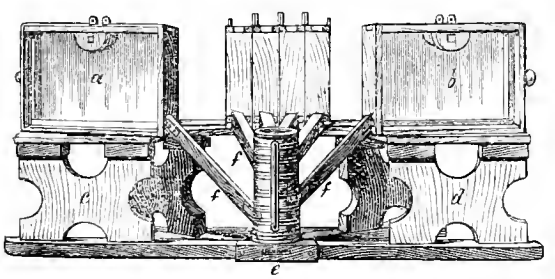


be suspended, hinged in fact, like a door, so that it can be turned to the right or left, and examined on both sides, and when at rest may be folded back against the wall, to be protected by thin pannelling, or altogether hid by a painting or engraving. A is a board of about 1½ inches in thickness, with a cleat, B, fixed to its lower end, and a binge, G, to its upper, the whole intended to be screwed or bolted to the wall of the house, leaving means of entrance for the bees at the point C. . D D are cleats screwed to the underside of the hive frame, in one of which the hive revolves on B, while the

other acts as a foot when the hive is unhinged, the bees being confined by a slide at E. . F is a framework of wood, to hold the frames of comb, which may be of any number desired, though four Woodbury's, or two of Standard size, will be found ample. The latter as being more compact is to be preferred. It is made of clear deal, nicely varnished, and if to hold four frames has a central upright; and the whole is enclosed with double glass or shutters, as preferred. When complete the cleat D is placed upon B, and the top corner is brought up to G, which is a short hinge, and through which an iron thumbscrew is passed, as shown, forming the top pivot on which the hive swings. Altogether the arrangement is most simple; and as it has no iron tunnel for the bees to pass through, it is much more comfortable for them. The only one that has ever been made was exhibited while barely complete at the East of Scotland Bee-keepers' Society meeting at Arbroath, where it was awarded the first prize. It was also shown, at the same Society's meeting at Dundee, where it was in conjunction with Ligurian bees, the beauty of which was a bone of contention over which the Judges could not agree, so all were considered equal. This form of hive we most strongly recommend. It will be called Abbott's Improved Observatory, and will be manufactured by Abbott Bros., of Southall, and probably by a host of others now it has been so fully described.

THE WILSON OBSERVATORY HIVE.

This hive is composed of a semi-circular stand, *c, d,* surmounted by six or more sections, each of which contains a bar-frame, and is covered with a quilt. The entrance, *e*, is in the front of the stand, through which the bees pass to a pile of wooden cylinders working into each other with a flange.



Between these cylinders and the sections are wooden tunnels, *f*, connecting, through which the bees pass out of the pile of cylinders into the sections. The figure shows the centre sections closed, and the combs are as nearly as possible in their natural positions. A passage is left for the queen to pass freely from one comb to another at the top of each section which is shown in *a, b.* The slides, closing these passages, are shut down before opening the sections for observation. The sections are moved by a handle at the back of each to any part of the stand as required. This hive took the first prize at Edinburgh, and a special prize at Dorchester.—Brice Wilson, *Newbury.*

ABBÉ COLLIN'S NATURAL HISTORY OF THE BEES.*

We are exceedingly sorry that owing to the press of matter consequent on the publication of the reports of the numerous Provincial Shows that have taken place of late, it has not been possible to publish the translation of the above, so kindly placed at our disposal, but next month we hope to introduce it. It is a most interesting work, showing the views and opinions of an observer, who either chose, or accepted, the stand-point from which he made his scrutiny. In either case the means of observation cannot be considered the best, and consequently some of the conclusions arrived at are not thoroughly acceptable at the present time. We have, however, the Venerable Abbé's permission and full sanction to criticise his writings 'with unsparing hand,' and in our next we hope to give a portion of his work, accompanied by such notes and references as shall make the translation agreeable and instructive on both sides the Channel. Under any conditions, although not professing to be beyond criticism, we hope the comparison of thoughts and facts will stimulate all our readers and friends to more direct inquiry, and that, like the Abbé Collin, they will give their views in the light of day to the world for what they are worth, that whatever is good in them may be appropriated for the good of the cause, and all errors (if any) made the subject of popular discussion.—Ed.

THE LATE MISS STIRLING GRAHAM, OF DUNTRUNE.

By way of adding my stone to the memorial cairn so well commenced by 'A Renfrewshire Bee-keeper,' to the memory of the above estimable lady, and probably the oldest practical bee-keeper in this country, I may briefly place before the readers of the *B. B. J.* the following facts. I gather from Miss Graham's notes in the edition of the *Bee Preserver*, published in 1829, that she had kept bees in various kinds of hives for a number of years previous to that date. The probability is that she had been interested in them from her childhood, and been a bee-keeper for at least seventy years. Her bees were her pets, and in all operations amongst them, whether in swarming or depriving, she insisted on being in the

* *The Natural History of the Bees.* Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris: Berger, Levraut & Co. 1875.

fore-front. On my last interview with her, May 5th, the day after she had entered her ninety-sixth year, she lamented that, by doctor's orders, she could not get out as she expected, to see the interior of her hives.

Although so enthusiastic about bees, Miss Graham continued to use only skeps made of bent grass, and these of very small size, until last year. She, however, never destroyed her bees, but obtained her honey in straw supers, or by the excision of combs, without first removing the bees. She had no idea of driving. Indeed, although she may have heard of modern methods, she seems to have practised entirely the method of De Gelieu, a second edition of whose work she published in October, 1875. About ten years ago she heard of the Woodbury bar-frame hive, then used by our veteran President, Mr. Henry Lorimer, and sent her favourite gardener, William Spalding, to bring her a report of them. There chanced to be several stories of supers on the hives, and the beauty of so much snow-white comb as seen through the glass sides so astonished the old man, that he exclaimed, 'I maun na tell my leddy aboot this, or she'll gang *clean gyte!*' However, in a few days, his lady appeared in her carriage at Coldside, and there made her first acquaintance with the moveable comb hive. The death of her factotum, Spalding, not long after, and the fear that no one could assist her in their management, delayed the adoption of bar-frames until our Society was started, early in 1876. In getting up this Society, I found in Miss Graham a delighted patron and a warm friend. Her earnest desire for a frame-hive was gratified, and she had her chair wheeled into the garden to witness the transfer of bees and combs from her skeps to the new domicile. She had no fear of bees, but must be close to the operator. Every motion was watched, and explanations required. For the first time in her life she recognised the queen-bee, which I had picked out of the cluster. 'Oh,' she exclaimed, 'isn't it so delightful to see how they just do what is wanted?' And especially was she pleased to see that scarcely a bee lost its life. It was then proposed that we should go and remove the bees from under the roof of the mansion. A day was fixed, and on arriving, I found that quite a company of ladies and gentlemen had been invited to witness the operation. An immense quantity of beautiful comb was sent down in buckets, and the operation was completed to her great delight, without either stupefying or sulphuring the bees. But, not to be tedious, I hasten to a close. Of course, she must have a Ligurian queen, whose introduction she superintended last autumn. An extractor she would fain have got, but we advised her against it until it should be actually required. I treasure her last note to me, in her own beautiful handwriting, dated May 1st, 1877, begging me to come and see why her new Italians were 'killing all the black bees.' I found that some hunger-swarm had settled on her Ligurian hive, and had of course suffered. On finding that her own stocks were no worse of the fray, she was greatly pleased. The child-like simplicity and uniform courtesy of our aged friend, combined with the clearness of her fine intellect, characterised her to the end of her long life. Her beloved bees seemed as if they could not survive her loss; impoverished by want, they were found in a dying state by a neighbour a few weeks after their mistress's death, and were mercifully purchased by him, and removed to where they will be kindly treated for her sake.—Wm. Raitt, *Sec. E. of Scotland Bee-keepers' Society, Lift, Sept. 17th.*

COMMENTS ON THE DORSET BEE SHOWS.

A correspondent writes:—'There were very few novelties to notice, but, speaking generally, the shows were very successful. Some of the honey exhibits were extraordinary, taking the season into consideration, and the comments of certain spectators were by no means flattering to the owners. In one large super there was very good evidence of skilful manipulation, which was pointed out to members of the Committee. Messrs. Abbott's portable transferring rack, a most compact and useful article, was awarded a special prize. Their cheap bee-trap was also an excellent idea, and gave a valuable hint to country cousins how to utilise things which cost but little. Mr. James Lee's hive, with a reversible cover (to be used over supers in summer, and to act as an outer shell for the stock hive in winter) also attracted attention. Some of the local supers were ornamental as well as useful; glass having been worked up in various forms, with gilt and other mouldings; but nothing exhibited appeared to be likely to permanently compete with the little sectionals. The new observatory hive, sent by Mr. Brice Wilson, of Newbury, had a special prize (which is to take the form of a silver medal) awarded to it. It contains some capital arrangements, but as it is, I hear, to be described in your columns, I will not enter into details. Before it comes into general favour it will probably be considerably modified, as it certainly is not elegant. The observatory of the future will probably be a combination of the hive referred to and those exhibited by Messrs. Tilley and Butcher, of Dorchester; the latter, the frames of which are attached to a hollow centre, something like the spokes of a wheel to the axle-tree, being neater, more ornamental, and replete with ingenious contrivances to make the management easy and the bees comfortable.

Mr. Brice Wilson has, however, taken a long step in the right direction; and makers of observatories will do well to profit by the valuable hints his exhibit afforded.

One thing is pretty certain, namely, while they cater for a non-bee-keeping public as well as for those who have apiaries, the managers of bee and honey shows must have observatories to interest spectators, and practical manipulations to astonish and instruct them.

Notwithstanding our Editor's recent remarks respecting his 'new idea,' I fancy it may yet be utilised, and that it will be found a valuable adjunct to supering. At any rate, I hope to give it a trial, having used the perforated zinc adapters for two years past on a small scale with complete success; the supers worked thereon being perfectly free from brood spots. The bee-keepers of Weymouth have already announced their intention of having a show there next year; so our Dorset friends appear to be thoroughly in earnest.'

SHERBORNE BEE AND HONEY SHOW.

Wednesday, August 29th, 1877.

From the 'Western Gazette.'

The bee and honey show again formed a source of great attraction. The tent devoted to it was crowded during the whole day, and the visitors appeared to find an endless fund of interest in the various exhibits placed upon the stages. There has been a great outcry recently as to the badness of the honey season, and bee-keepers who have had stocks for a score of years say they have

seldom known such a dearth of the coveted nectar. Notwithstanding this, however, there were some very fine supers entered, which were filled with beautiful straight combs of excellent quality, in which the colour of the honey gathered from blossoms and clover, limes, and heather, could be easily seen.

There was a large assortment of hives, supers, feeders, and bee-keeping apparatus generally, the leading contributors being Mr. James Lee, of Bagshot, Surrey, and Messrs. Abbott, Bros., Southall, Middlesex, who endeavoured to make the visitors acquainted with the use of the various articles exhibited. There were only three honey extractors in the tent, and the prize fell to Mr. John Walton, of Weston, near Leamington, a working carpenter, who is such an enthusiastic bee-keeper that he has even named his house 'Honey Cott.' The use of these simple and useful machines was explained by Mr. C. E. Norton, hon. sec. of the Dorset Bee-keepers' Association, and others. One feature of the show is worthy of a special note, namely, the excellent competition for the prizes awarded for straw skeps. This is an important feature of the list, inasmuch as it will probably be some years before the improved hives are brought into general use, and, in the meantime, it will be well to introduce larger and stronger skeps, upon which supers can be worked. Cottagers will adopt these in place of the small dome-shaped hives more readily than they will bar-framers, because they are more like what they have been accustomed to, and there is less management. If they can only be induced to work supers and save their bees it will be a long step in the right direction. Other improvements will follow in due course. The skeps exhibited by Mr. R. Legg, of Compton Abbas, and Mr. C. W. Downes, of Blandford, were admirably made, and in every respect far in advance of those usually sold. Mr. Jarvis, of Bradford Abbas, exhibited a very cheap and simple hive, made of an American cheese-box, well painted, with a flower-pot for a super, and a pickle bottle for a feeder. The show was a great success, and Messrs. Norton, Tilley, Vatcher, and others, who undertook the management of it, must have been well pleased with the result of their efforts.

Bee and Honey Prizes.

Open Classes.—Hives, &c.—Best collection of hives and apicultural appliances, 2*l.*, Mr. James Lee, Bagshot. Best hive for observation purposes (the hive to be stocked with combs and bees), 1*l.*, Mr. W. R. Vatcher, Dorchester; equal second, 10*s.* each, Mr. M. H. Tilley, Dorchester. Mr. W. Martin, High Wycombe; Mr. O. Poole, Uphill. Best moveable comb hive, with cover and stand completely furnished, 1*l.*, equal first, Messrs. Abbott, Bros., Southall, and Mr. J. Lee; 10*s.* Mr. J. Lee. Cheapest complete bar-frame hive, suitable for out-door use, 1*l.* Mr. J. Lee; 10*s.* Mr. H. Fuggle, Brede, Sussex; highly commended, Mr. C. W. Downes, Blandford. Best and cheapest straw skep with super, 10*s.* Mr. C. E. Norton, Shaftesbury; 5*s.* Mr. C. W. Downes. Best and cheapest supers for general use, 10*s.* Mr. J. Lee; 5*s.* equal, Messrs. Abbott Bros., and Mr. H. G. P. Knight, Newbury, Berks. Best and cheapest feeders for general use, 10*s.*, Mr. O. Poole, Uphill, Weston-super-Mare. Cheapest complete extractor for general use, 10*s.*, Mr. John Walton, Weston, Leamington.

Prizes offered by Dorset Bee-keepers' Association.—Largest and best exhibition of super honey, in comb, the property of one exhibitor, and gathered by his own bees in 1877, 1*l.*, Mr. W. Martin; 15*s.*, Mr. T. Stickland, Piddletown; 10*s.*, Mr. W. H. Dunman, jun., Dorchester. Largest and best harvest of super honey, in comb, from one stock of bees, gathered in 1877, 10*s.*, Mr. T. Stickland; 7*s.* 6*d.*, Mr. W. Martin; 5*s.*, Mr. E. Bracher, Mere; 2*s.* 6*d.*, Mr. W. H. Dunman, jun.

Cottagers' Class.—Largest and best exhibition of super honey, in comb, the property of one exhibitor, and gathered by his own bees in 1877, 1*l.*, Mr. W. Martin. Largest and best harvest of super honey in comb from one stock of exhibitor's own bees, 10*s.*, Mr. W. Martin; 7*s.* 6*d.*, Mr. W. Pavitt, Barwick; 2*s.* 6*d.*, Mr. W. Chubb, Evershot. Best bar-frame hive, made by exhibitor, 10*s.*, Mr. W. Martin. Best and cheapest straw skep made by exhibitor, 7*s.* 6*d.*, Mr. W. Martin; 5*s.*, Mr R. Legg, Compton Abbas.

For Members of the British Bee-keepers' Association Only.—Largest and best exhibition of super honey, in comb, from one stock of bees, under any system or combination of systems, silver medal, Mr. W. H. Dunman, jun.; bronze medal, Mr. O. Poole.

Members of Dorset Bee-keepers' Association Only.—Same regulations.—1st, silver medal. Mr. T. Stickland; 2nd, bronze medal, Mr. W. H. Dunman.—For cottagers only. To exhibitor gaining greatest number of prizes, bronze medal, Mr. W. Martin.

Special Prizes.—21*s.*, Mr. C. Tite, Yeovil, for collection of natural objects connected with bee-keeping.—5*s.*, Mr. C. E. Norton, Shaftesbury, feeding stages.—5*s.*, Messrs. Abbott Bros., portable transferring rack.

Dorset.—In the report of the Flower Show held at Iwerne Minster a local contemporary says:—'During the afternoon Mr. C. E. Norton (hon. sec. of the Dorset Bee-keepers' Association) and Mr. G. Lydford (of Shaftesbury) exhibited and explained one of the new bar-frame hives. They also gave a practical illustration of the method of driving and transferring bees, uniting stocks, &c.'

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

The second annual exhibition of the above Association took place at Grantham on the 11th ultimo, and except that the manipulations with live bees (which took place in the Grange gardens) were somewhat interfered with by the rain, the whole affair was eminently successful. The exhibition of hives and bee-furniture took place in the Exchange Hall, and the honey fair was arranged in the large room adjoining, and we are glad to be able to state that every drop of honey there placed found a very ready sale; and so great was the demand, created by judicious advertisement, that many of the supers, brought for exhibition only, found willing purchasers; and we may safely assert that, excepting some old-fashioned glass supers and one or two non-divisible wooden ones, the whole of the honey on sale was disposed of, and the honey fair is, we may fairly state, established. Sections of comb honey were the rage, and we cannot help advising all those who wish to dispose of honey in the future, to adopt the sectional super system, and get their nectar stored in nice little sections, the sight of which makes one long to purchase them. The quantity of honey sold was estimated at three quarters of a ton. Mr. Cockman had charge of the honey fair arrangements, and may be congratulated on the great success of his efforts.

There was an admirable collection of hives, embracing almost every conceivable shape and make; and supers to suit the taste of the most scientific apiarian. We may especially mention a very novel straw hive, called 'The Nancy,' exhibited by Col. G. F. Pearson, of Nancy, France. The principal exhibitors for competition were Messrs. Abbott, Bros., Southall; Mr. Hall, Grantham; Mr. Lee, Bagshot; Mr. Brett, Grantham; Mr. Lloyd, Grantham; Mr. Hale, Horncastle; Mr. Mattock, Grantham; Captain Martin, Kings Somborne, Hampshire, and others. The class for the largest and best collection of hives and bee appliances was especially attractive. Here Mr. Lloyd, of High Street, had a large and interesting display, which was well worthy of inspection. Messrs. Abbott, Bros. were also noteworthy exhibitors, and a nice little collection (though not for sale) was shown by Mr. R. R. Godfrey. Several kinds of slingers were on view, and much admired. The Association slinger was arranged in the centre of the hall, and during the day Mr. Brett and Mr. Holloway illustrated the manner in which the honey is extracted from the comb. Observatory hives, with splendid specimens of Ligurian and British bees, were exhibited by the Right Hon. the Earl Brownlow, Mr. R. R. Godfrey, Mr. Bolton (Belton), and

Mr. Roberts (Belvoir), and excited the greatest possible interest. The bee-manipulations were entrusted to Messrs. Desborough, Abbott, and Symington, while Mr. Carr most ably explained to the visitors in the tent the various matters on hand. Unfortunately, after one stock had been 'driven' and 'transferred,' rain began to descend; and after a short time a continuous downpour set in, which prevented further operations beyond the driving of a second stock, the bees of which were afterwards returned to their hive.

In the class for natural objects, illustrating the economy of the honey bee, there were some interesting exhibits by Mr. D. J. Godfrey, of Grantham, and Mr. Percy Ingram, of Belvoir. The largest exhibitors in the honey classes were—Mr. Walton, Honey Cott, Leamington; Mr. W. Martin, High Wycombe; Mr. Sells, Uffington, Stamford; Mr. Lighton, Frampton, Boston; Mr. Measures. Upton, Southwell; Miss Moore, Maulden Cottage, Ampthill; Mr. Roberts, Belvoir; Mr. Godfrey, Grantham, &c., &c.

The Hall was tastefully decorated with flags and evergreens, and a collection of plants kindly lent by the Earl Brownlow, which were suitably arranged by Mr. Bolton of Belton. Mr. Geo. Brett, of Grantham, and Mr. Geo. Low, of Belton, carried out the decorations, and also made the requisite preparations for the show itself; while Mr. Holloway, F.G.S., Mr. Ashwell, of Barrowby, and several other energetic members, satisfactorily undertook the arduous duty of receiving, classifying, and staging the numerous exhibits. It is only due to them, and to the indefatigable hon. treasurer, and secretary *pro tem.*, Mr. R. R. Godfrey, to say that the arrangements were admirably made and carried out, and that the work of judging was rendered lighter in consequence: the following gentlemen kindly acting:—Bees and honey: Mr. C. N. Abbott, Fairlawn, Southall; W. Carr, Esq., Newton Heath, Manchester; and Mr. Bolton, Belton. Hives: T. W. Cowan, Esq., Horsham; J. G. Desborough, Esq., Stamford; and R. Symington, Esq., Market Harborough.

A large and influential company visited the Hall during the afternoon, including the President, the Venerable Archdeacon Trollope, the vicar and Mrs. Clements, and the Mayor and Mayoress of Grantham; and many were the congratulations on the success of the exhibition. We were sorry to miss our old and esteemed friend, the Rev. D. W. Pennell, the Hon. Sec. of the Association, whose duties took him from Grantham; where as an apiarist and earnest promoter of bee-culture his name will ever be remembered, apart from the duties of his sacred calling.

Apart from the exhibition, one notable and interesting feature deserves attention, and should be emulated at all future shows. On a table in the centre of the Hall were arranged a number of powerful microscopes, lent by Dr. Robbs, Mr. Ball, of Waltham, Mr. Boulton, of Grantham, Mr. Gamble, and Mr. Holloway, by the aid of which specimens of different parts of the honey-bee might be carefully examined.

Another matter deserving of notice was the extremely courteous manner of every one connected with the exhibition. Party feelings were thrown aside, and all vied with each other to clinch the success which 'Pioneer' Godfrey had carved out. Of Mr. Godfrey's own self we may say he was more than ubiquitous; he seemed to be everywhere at once, a host in himself, and a host, too, in other than the numerical sense, for he kept 'open house' throughout the show for all connected therewith, and thus brought together—we trust to their mutual satisfaction—many who, but for his generous hospitality, might have remained strangers to each other except in name.

The following is the list of prizes:—

BEES.

For the best stock, or specimen of Ligurian bees, to be exhibited with the queen in an observatory hive:—1st prize, 20*s.*, Mr. Roberts, Belvoir; 2nd, 10*s.*, Mr. Godfrey, Grantham.

For the best stock, or specimen of English Bees, to be exhibited with the queen in an observatory hive:—1st prize, 10*s.*, Mr. Roberts, Belvoir; 2nd, 7*s.* 6*d.*, Mr. Godfrey, Grantham; 3rd, 5*s.*, the Right Hon. the Earl Brownlow, Belton House.

HONEY.

For the largest and best supers of honey, the produce of one hive:—1st prize, 20*s.*, Mr. Sells, Uffington, Stamford; 2nd, 15*s.*, Mr. W. Martin, High Wycombe; 3rd, 10*s.*, Mr. J. Walton, Leamington; 4th, 7*s.* 6*d.*, Mr. J. Walton, Leamington.

For the best glass super, under 30 lbs. nett weight:—1st prize, 15*s.*, Mr. W. Sells, Uffington; 2nd, 12*s.* 6*d.*, Mr. W. Sells, Uffington; 3rd, 10*s.*, Mr. W. Sells, Uffington; 4th, 7*s.* 6*d.*, Mr. J. Walton, Leamington; 5th, 5*s.*, Rev. — Turner, Bardney; 6th, 2*s.* 6*d.*, Mr. W. Martin, High Wycombe.

Special prize, presented by S. F. Clutten, Esq., Whittingham Hall, Fressingfield, Norfolk. A complete bar-frame hive for the best and largest super of honey exhibited in Classes 4, 5, or 6, by a cottager, a member of the Association, awarded to Mr. Joseph Allen, Ashfield, Lincoln.

For the best wood, or wood in combination with either glass or straw, super of honey:—1st prize, 15*s.*, Mr. W. Martin, High Wycombe; 2nd, 12*s.* 6*d.*, Mr. W. Measures, Upton; 3rd, 10*s.*, Mr. W. Martin, High Wycombe; 4th, 7*s.* 6*d.*, Mr. J. Walton, Leamington; 5th, 5*s.*, Rev. W. J. Stracy, Buxton, Norfolk; 6th, 2*s.* 6*d.*, Mr. J. Walton, Leamington.

For the best straw super:—1st prize, 10*s.*, Miss Louisa Moore, Maulden Cottage, Ampthill.

Special prize, presented by Messrs. W. and T. Sells, of Uffington. A stock of bees for the best exhibit in Classes 7 and 8, by a cottager, a member of the Association, awarded to Mr. Measures, Upton, Southwell.

For the best glass of extracted or run honey, of not less than 5 lbs. nett weight; quality to be the chief point of excellence:—1st prize, 10*s.*, Mr. Samuel Cross, Grantham; 2nd, 7*s.* 6*d.*, Mr. W. Martin, High Wycombe; 3rd, 5*s.*, Mr. W. Sells, Uffington; 4th, 2*s.* 6*d.*, Mr. W. Martin, High Wycombe.

For the best and largest exhibition of extracted or run honey in glass or other jars:—1st prize, 20*s.*, Mr. J. Walton, Leamington; 2nd, 15*s.*, Mr. W. Measures, Upton; 3rd, 12*s.* 6*d.*, Mr. W. Martin, High Wycombe; 4th, 10*s.*, Mr. Godfrey, Grantham; 5th, 7*s.* 6*d.*, Mr. Lighton, Frampton, Boston.

The silver cup of the Association, open to members only, for the best and largest exhibition, in all or any of the honey classes, of honey taken without destroying the bees. The cup to become the property of the member who shall win it three times. The winner this year was Mr. W. Sells, Uffington, Stamford.

For the finest sample of pure bees' wax, in cakes of not less than 1lb.; 1st prize, 5*s.*, Mr. H. Tuck, Wisbech; 2nd, 2*s.* 6*d.*, Mr. W. Sells, Uffington.

For the best liqueur, wine, or mead made from honey, with the receipt attached; all honey to be the *bonâ fide* property of the exhibitor, gathered by his or her bees in the natural way this year; 1st prize, 15*s.*, Mr. W. Sells, Uffington; 2nd, 10*s.*, Mr. Tuck, Wisbech.

HIVES.

For the best complete hive, on the moveable comb principle: 1st prize, 20*s.*, Mr. C. N. Abbott, Southall; 2nd, 10*s.*, Mr. Lee, Bagshot; 3rd, 5*s.*, Mr. J. Hall, Grantham.

For the best and cheapest complete hive, on the moveable comb principle:—1st prize, 15*s.*, Mr. Lee, Bagshot; 2nd, 10*s.*, Mr. J. Hall, Grantham; 3rd, 7*s.* 6*d.*, Mr. Fuggle, Brede; 4th, 5*s.*, Mr. Hale, Horncastle.

For the best and cheapest straw skep of any description:—1st prize, 7*s.* 6*d.*, Colonel G. F. Pearson, Nancy, France.

For the best and cheapest supers for general use in an apiary:—1st prize, 10*s.*, Mr. Lee, Bagshot; 2nd, 5*s.*, Mr. H. B. Knight, Newbury; 3rd, 2*s.* 6*d.*, Mr. C. N. Abbott, Southall.

For the best honey extractor; portability and cheapness to be considered:—1st prize, 20*s.*, Mr. C. N. Abbott (Little Wonder); 2nd, 10*s.*, Mr. J. Walton, Leamington.

For the best and largest collection of hives, bee furniture, and apiculturist's necessaries:—1st prize, 30*s.*, Mr. E. Lloyd, Grantham; 2nd, 20*s.*, Mr. C. N. Abbott, Southall; 3rd, 10*s.*, Mr. Godfrey, Grantham.

For the best and most interesting collection of natural objects connected with apiculture, and illustrating the natural history and economy of the honey bee :—1st prize, 20*s*., Mr. D. J. Godfrey, Grantham ; 2nd, 15*s*., Mr. Percy Ingram, Belvoir.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY'S SHOW AT DUNDEE.

August 30th and 31st, and September 1st.

You will easily understand that previous to the event there was grave anxiety among the officials of our Society as to its being a success. Now, however, when it is past we breathe freely and rejoice in having at least kept the ground we won last year; there was certainly a lamentable falling off both in the quantity and quality of the honey exhibits, but we were fortunate in having other attractions. There were no fewer than four observatory hives stocked with Ligurians, and all so excellent that the judges ruled them equally entitled to share in the prize money. Then there was a very fine 'byke' of the 'garrie' humble-bee, working in a rustic cottage with glass sides beautifully got up by Mr. D. Ramsay, Baldovie. These were great attractions; so were the bee-swarming operations and transfers that took place twice a-day in the back yard. To bee-keepers there was besides a very full array of hives, extractors, feeders, comb-foundation machine, &c. &c., which, seen by many for the first time, were a source of great interest.

I enclose the prize list, from which you will observe that the competition in the honey classes was by no means brisk. The only really fine supers were those belonging to Mr. J. Edwards, gathered on the borders of the Highlands from clover and heather. Our attempt to 'draw' fancy designs was a failure, although I am told that some wonderfully and fearfully made stars, &c. were a getting-up by bee-keepers, not bees. We hope to see them next year. Some interest was shown by bee-keepers in a glass super belonging to me, in which there was no visible entrance for the bees, and labelled, 'A Reel in a Bottle.'

Run honey was generally dark from fruit-blossom. Mr. M'Gregor's glass of heather honey was in its place, as last year, alone. Mr. M'Gregor spares no trouble to get the pure article without a trace of clover or other honey, and the result is this high-coloured, strong-flavoured, and hill-smelling exhibit.

Wax was greatly improved in appearance. My own took first prize. It was moulded as a bunch of grapes, surrounded by half-a-dozen fish and was almost pure white. There is a general feeling that pure wax should be yellow, but a look at sugar-fed or heather-built combs will prove this to be an error. Pure wax is white, yellow wax is contaminated by propolis and will be so wherever forest trees are within reach. My wax was built in the moors where there were no trees from which to gather propolis.

There was nothing new of importance shown in the furniture line unless it were the Unicomb Hive of Mr. Stewart made by Abbott Brothers, I understand, specially intended to hang inside a building; a bar-frame storifyer by Mr. Steele, a form of super highly approved by honey merchants; and the excellent all-metal smelators of Messrs. Steele and Young.

A meeting of bee-keepers was held in Lamb's Hotel on the Saturday afternoon; upwards of thirty were present. The great question for discussion was, How to feed? The answers were generally in the line of the directions contained in last number of the *British Bee Journal*. I ventured to suggest for experiment a a method of winter feeding, where it is necessary, that from previous experiments I think ought to be a success. Take a bar-frame without any distance pins or blocks, bore a few holes along the middle of the top and end bars, and through these and round the bottom bar cross and recross some pack thread; then lay the frame flat on a cold plate or flat stone having below it a sheet of thin paper, turned up round the bottom bar. Having boiled sugar and vinegar as for making barley sugar until a drop of it will chip off, pour the same into the frame until quite full. When set it will be easily lifted, the paper keeps it from sticking, and hung in the hive near the cluster. Two such frames should winter any hive. The thread or strings are intended to hold the remains of the barley sugar together after the bees have reduced it to a skeleton. In answer to the question, how to adapt this plan to skeps, it was suggested that the liquid barley sugar should be poured into a wide-mouthed bottle or tumbler along with a few sticks to hold it together as long as possible, and, when set, inverted over the feed-hole and kept warm.

Our Society now numbers about 160 members not including those of branches. On the whole, we congratulate ourselves that progress is being made. Important honey shows were held under our auspices at Arbroath and Blairgowrie; and, through our members, honey exhibits have been introduced into most of the horticultural shows of the district. Notwithstanding the wretched season there is a degree of enthusiasm manifested that augurs well for the future of bee-keeping in this quarter. I hear of no one proposing to 'sell off.' Condemned bees are at a ransom. Sugar is cheap and we know how to use it: so our motto for the season is 'Nil Desperandum.' —William Raitt, *Sec. E. of S. B. S. Liff, Sept. 5th*, 1877.

We extract the following from the *Dundee Advertiser*, Aug. 31st, 1877 :—

With all due deference to the splendid specimens of horticultural products in the halls, there is no concealing the fact that the corner occupied by the East of Scotland Bee-keepers' Association is really the most popular department of the Show this year. The enthusiastic Secretary, Mr. Raitt, Mr. H. Lorimer, and other bee-keepers who have been on the spot explaining the habits and customs of the bees to the visitors, merit the best thanks of all who have had the pleasure of their instructive and entertaining conversation. As not only the honey, wax, and hives are laid out in abundance on the tables, but many thousands of the busy living bees are seen at work, no wonder the visitors are fascinated. Hundreds of ladies and gentlemen have witnessed the process of bee-swarming at noon, and again at three o'clock. The process is exhibited in the court in rear of the Drill Hall. Yesterday afternoon, while the process was going on, thousands of bees alighted on the spectators, but as they were asked to remain steady no one suffered, though they settled on the heads and faces of the ladies. The exodus from one hive to another, following the queen-bee, which was shown to the visitors, excited the liveliest feelings of interest and pleasure. One gentleman, a Pole, residing at Pitlochry, showed a superb and substantial gold watch to a number of the visitors. On the back of the inner case was the following inscription: 'Presented by my bees to me as the fruits of one year's industry.' Nothing could be more interesting than the nest or byke of the common humble or Gairrie bee, exhibited by Mr. S. Ramsay, Baldovie. The live bees with their neat-looking combs are enclosed in a rustic cottage covered with moss, heath, and lichen. As the sides are of glass the bees are readily seen, and visitors never appear to tire watching their movements among the cosy moss. In this department specimens of wax foundations, hives, and bee-furniture are shown by Mr. Tait, Liff; Mr. R. Steele, Fowlis; and Mr. W. M. Young, ironmonger, Perth. A splendid collection of honey is also shown by Mr. Edward Bailey, fruiterer, High Street. Mr. Yeaman, M.P. for Dundee, in his speech on opening the exhibition, said :—'I cannot forget the bee-keepers who have such a capital collection in the corner of the other room. I have been examining the bees. It is a perfect delight to any person to witness their movements

and I dare say they will not be the least interesting portion of this *fête*. When the queen was pointed out to me moving about so majestically among her subjects, and when I saw the loyalty displayed towards the queen, and the industry of her subjects within these glass cases, I thought to myself how proud as a nation would we be if we had such loyalty sometimes in the British House of Commons—(great applause)—if we had such regularity and such order, and if the Master Speaker had such a great command over Obstructionists as the bee queen had over her subjects.'

The following were the judges:—For Honey, Wax, and Hives—Mr. Alexander Shearer, Yester Gardens, Haddington; Mr. J. D. Ker, Douglasfield: Mr. Henry Lorrimer, Coldside, referee. Their awards was as follows:—

Largest and best harvest of Super Honey, the produce of one hive (1 entry)—3, James Edwards, Fowlis (20 lbs.)

Largest and best harvest of Super Honey, the produce of one hive, in cases not over 5 lbs. nett (1 entry)—3, James Lorimer, Monifieth.

Best Single Super under 10 lbs. (5 entries)—1, W. Raitt, Liff; 2, John Stewart, Arbroath; 3, H. Lorimer, Coldside.

Extra Prize for best Sectional Super under 10 lbs. (3 entries)—1, John Stewart; 2 Thomas Christie, Rattray; 3, George Chapman, Newtyle.

Best Super in Straw under 10 lbs.—2, James Ballantyne, Foss, Perthshire; 3, John Reid, Ballindean.

Messrs. Scrymgeour & Sons' Prize for Finest Super not over 7 lbs.—James Edwards, Fowlis.

Run or Extracted Honey, 6 lbs. in Show Glass—1, Robert Kirk, Denball, Cupar; 2, John Matthew, Farnell: 3, John Reid, Ballindain.

Heather Honey in Show Glass—R. M'Gregor, Inchmarlo, Aberdeenshire.

Cheapest Bar Frame Hive, suitable for Cottages, with Floorboard and Roof—1, R. Steele; 2, R. M'Gregor, Inchmarlo; 3, W. W. Young, Perth.

Best Hive on the Storifying principle, price not over 20*s*.—R. Steele.

Best and neatest Observatory or Unicomb Hive stocked with bees—H. Lorimer, Coldside; R. Steele, Fowlis; James Lorimer, Monifieth; and John Stewart, Arbroath—all equal.

Run or Extracted Honey, 1 lb. of fruit blossom; Clover and Heather Honey, in separate glasses—2, John Lamond Arthurstone, Meigle.

Two lbs. Wax—1, William Raitt, Liff; 2, John L. Brabner, Inchmarlo; 3, Charles Forbes, Belmont, Meigle.

Six Sheets Wax Foundations—William Raitt, Liff.

Bar Frame, complete, with Floorboard, Super, and Roof, price not over 20*s*.—1, R. Steele, Fowlis; 2, W. W. Young, Perth.

Most beautiful Ligurian Bees, with their Queen in Glass Hive—1, John Stewart, Arbroath; 2, W. Raitt; 3, James Lorimer.

Best Strain Skep and Super—1, Charles Carnegie, Mary Kirk.

Best Honey Extractor, combining cheapness with general efficiency—1, R. Steele; 2, W. W. Young.

Best form of Super for general use in an apiary—1, W. Raitt, Liff; 2, R. Steele.

A stand of home and foreign honey, exhibited by Mr. E. Bailey, The Pillars, was very highly commended by the judges. The nest of wild bees in an ornamental cottage, shown by Mr. David Ramsay, Baldovie, was awarded a special prize.

BEES AT ELLESMERE, SALOP.

At the Flower Show which took place on the 30th of August in the beautiful grounds of Major Cust, M.P., we were invited at short notice to give an exhibition of manipulation with bees, and had great pleasure in accepting the same.

We had a spacious tent, plenty of bees, the able assistance of Mr. Isaac Lake of Criftins, near by, and the great advantage of the presence of the Hon. the Rev. C. Fieldug, the Vicar of Stapelton, who thoroughly explained to large and wondering audiences the various phenomena and mysteries of the hive. As usual, the visitors insisted on coming within the area, when the bees had been 'quieted,' and we are assured that much of the old feeling of superstition and dread of bees has been exploded. Everything passed off most successfully up to the end of the Show, when a down-pouring rain drove the people home in crowds, and prevented the evening concert which was to have taken place by the band, on the lawn.

BEES AT THE ODIHAM SHOW.

Through the perseverance of Mr. W. Hunt, of Warnborough, arrangements were made for the admission of live bees to the Odiham Horticultural Show on the 28th Aug., and although the day threatened to be a wet one, the rain cleared off by ten o'clock, and everything went merrily as marriage bells. Everybody (?) was afraid of the bees before the operations commenced, but after we had toned them down and rendered them passive, there was the usual difficulty in keeping the public out of the enclosure in which the manipulations took place. The whole affair was an unmitigated success, there was no charge for viewing the operations, and the crowds who saw them declared them to be the best sight in the Show. There were prizes offered for honey, of which there was a very nice display,—Mr. Hunt having succeeded in obtaining a number of sectional supers which were greatly admired. The Show Committee expressed themselves highly pleased with the success that had attended our efforts, and doubtless bees will hereafter form a prominent attraction at their exhibitions.

BEES AT THE LISBURN (IRELAND) HORTICULTURAL SOCIETY.

The *Northern Whig* of August 31st, in noticing the Horticultural Show which took place at Lisburn, says:

'There was a novelty introduced this year which deserves special mention—namely, the opening of a section for the display of honey. It was not largely taken advantage of, but it is to be hoped that on future occasions a large number will enter the lists. So far as came under our notice yesterday there was only one exhibitor in this department, Mr. W. J. Gilliland, who obtained two first prizes, one for a super bell glass of honey, and the other for an observatory hive stocked with bees working, which was a very interesting sight.'

There were prizes offered as under, both of which fell to Mr. Gilliland, who, we trust, will keep bees well to the fore in all future shows in his neighbourhood.—Ed. *B. B. J.*

Honey.—Super Bell Glass, 1, W. J. Gilliland, Lisburn. Observatory Hive, stocked with bees working, 1, W. J. Gilliland.

BEES AT THE GREAT INTERNATIONAL SHOW AT CARLISLE.

Sept. 6, 7, 8, 1877.

This monster gathering of horticulturists and florists with their productions was the grandest event of the kind it has ever been our good fortune to witness. There were nearly two thousand entries displayed on miles of staging and tables, and the master minds that conceived and carried out the truly wonderful arrangements may be most fervently congratulated on the perfectness of their design, and the complete fulfilment of their work.

The only drawback to perfect success was the weather, and on the first day of the show the rain came down, a perfect deluge. 'Eh, mon, it's nae rain,' said a Northerner, 'but whole watter;' and truly it was almost so. The apiarian exhibition was capitally arranged at one end of a tent, chiefly devoted to fruit, a side tent having been

enclosed for the visitors to observe the manipulations. There was not a large supply of honey, but there were numerous observatory hives containing living bees, plenty of hives on view, and these with the manipulations made amends for any scarcity of honey, and created immense interest throughout the show. The prize list was not a large one, and did not attract a very large number of exhibitors, but so well pleased were the committee with the interesting character of the exhibition that in futnre it will be made a more prominent feature in the programme. Every such exhibition has its local leader, and here Mr. John Drinkall took the brunt of the labour from the shoulders of the courteous secretary, Mr. John Mounsey, and undertook the whole business of staging the exhibits and providing the bees for the manipulations each day. Never was greater excitement created by bees than was displayed during the process of artificial swarming, when they were forced from one hive to another, and it was most difficult to induce the visitors to believe that the bees had not been trained to the performance.

The following is the prize list:—

Bees (Class A).—1. Largest and best harvest of super honey, the produce of one hive—M. Mitchell, Station-master, Abington; George Eastwood, Ackworth, gross, 31 lbs.; equal.

2. Heaviest and best single super, the produce of one hive—1st, Mr. Willis, Wetherall; 2nd, George Eastwood, Ackworth.

3. Best super in wood, or wood and glass—1st, Mr. J. Barratt, Ackworth; 2nd, William Kennedy, 5, Teregles Street, Maxwelltown, Dumfries.

5. Best super in glass—1st, M. Mitchell, Station-master, Abington.

8. Best sample of run or extracted honey—1st, Thomas Tennant, Ecclefechan; 2nd, William Kennedy, 5, Teregles Street, Dumfries.

9. Best sample of wax—1st, R. Steele, Fowlis.

Class B. (Hives, &c.)—1. Best bar frame hive, with super—1st, John Drinkall, Castle Street, Carlisle (Abbott's Standard); 2nd, R. Steele, Fowlis by Dundee.

2. Cheapest bar frame hive, suitable for cottager, with floor—1st, John Drinkall, Castle Street, Carlisle; 2nd, R. Steele, Fowlis by Dundee.

3. Best hive on the Storifying principle—1st, R. Steele' Fowlis, by Dundee; 2nd, John Drinkall, Castle Street, Carlisle (Abbott's Storifyer).

4. Best straw skep and super—1st, John Drinkall, Castle street, Carlisle; 2nd, William Pattinson, Kirkbampton Rectory, Carlisle.

5. Best and neatest observatory on Unicomb Hive, stocked with bees—1st, R. Steele, Fowlis; 2nd, John Drinkall, Castle Street, Carlisle.

6. The most beautiful Ligurian bees, to be exhibited with their queen in glass hive—1st, John Drinkall, Castle Street, Carlisle.

Miscellaneous.—1. Best Bee-feeder—2nd, John Drinkall, Castle street, Carlisle.

2. Best method of quieting bees during manipulation—2nd, John Drinkall, Castle Street, Carlisle.

3. Best Honey Extractor—1st, R. Steele, Fowlis by Dundee; 2nd, John Drinkall, Castle Street, Carlisle (Abbott's Little Wonder).

4. Best super for general use in an apiary—1st, John Drinkall, Castle Street, Carlisle (Abbott's Sections); 2nd, R. Steele, Fowlis by Dundee.

5. Best bee dress—2nd, J. Drinkall.

6. Best drone traps—2nd, John Drinkall, Castle Street, Carlisle (Aston's).

7. Best bee traps—2nd, John Drinkall, Castle Street, Carlisle (Clutten's).

ARBROATH BEE AND HONEY SHOW.

(Communicated.)

The first exhibition of bees, honey, hives, &c. in connexion with the Arbroath Horticultural Society's show, and under the auspices of the East of Scotland Bee-keepers' Society, took place within the new Public Hall, Arbroath, on Friday and Saturday the 24th and 25th August. The space allotted to the bee-keepers was in the Picture Gallery, and the novelty of the new feature attracted crowds to the corner where the observatory hives were placed. Although every body now-a-days takes interest in those wonderful insects, many beheld here for the first time some of the mysteries of the inside of a bee-hive.

The unfavourable weather of the past season accounted for the limited number of honey exhibits, but those presented were fair specimens. There was a good display of hives and appliances, the largest exhibitor in this class being Mr. W. W. Young, Perth. The quality and workmanship, combined with the moderate price of his hives, wax, and honey-extractors, feeders, drone-traps, &c. &c. were much admired. Mr. R. Steele, Fowlis-by-Dundee, exhibited two bar-frame hives, one of which was a marvel of cheapness, complete hive with floor-boards, carpet, &c. for 4*s.*

Beside it stood a dome-shaped straw skep and floor-board, price 5*s.* 9*d.* Surely old round tops, with their brimstone reminiscences, are doomed! Unfortunately Messrs. Young and Steele's exhibits arrived too late for the judges' awards. The bar-frame hive by Mr. Jas. Gould, St. Vigeans, could not be surpassed for neatness and finish. Mr. Steven, Arbroath, exhibited an extractor of novel and ingenious construction. There were also specimens of artificial comb foundation in its various stages of development by the bees. From these could be seen the entire process of comb-building from the artificial wax foundation.

The judges were Messrs. H. Lorimer, Dundee, Jas. Glen, and Geo. Duncan, Arbroath, and the following are their awards:—

Best single super under 20 lbs., 1st, John Stewart, Letham Mill.

2nd, Wm. Raitt, Colliston.

Best sectional super, John Stewart.

Best 6 lbs. run honey, do.

Best observatory or unicomb hive, 1st, John Stewart, with a new pattern hinged at one end, to fold against a wall.

2nd, Jas. Lorimer, Dundee.

THE WOLVERHAMPTON BEE AND HONEY SHOW.

The second Show of the Wolverhampton and Staffordshire Bee Association was held in the grounds of Rupert Kettle, Esq. at Wolverhampton, on Monday, August 27th, in connexion with the Cottagers' Horticultural Show. The day was unpropitious, rain falling heavily during a great part of the afternoon, so that the Committee had reason to congratulate themselves on not having included manipulation in their programme. The comparatively small number of visitors, however, who braved the weather, were rewarded by an exhibition not only more extensive than that of last year, but also superior in number and quality of exhibits to some other local shows which have been held this season. The difference between the honey harvests of 1876 and 1877 was well illustrated by Mr. J. E. Briscoe's exhibition of Stewarton supers (not for competition). Last year he showed 144lbs. net from one stock, this year he could produce no more than 63lbs. on the same system. A noticeable feature in the Show was the large quantity of almost black honey or rather honey-dew, some samples being of fair flavour, others quite acrid in taste. One of the finest supers exhibited was disqualified for a prize in the 'Sectional Class,' the sections not being obviously separable. Mr. G. Lewis, Treasurer to the Association, showed a fine Observatory Hive of pure Ligurians, which was a centre of attraction throughout the afternoon. The Prize List, which is subjoined, will show that local exhibitors (of whom there were comparatively few), were beaten out of the field by 'foreigners.' Messrs. Abbott

Bros., were the only professional makers of bee-furniture who exhibited.

The Rev. J. D. Glennie and H. Spencer, Esq., kindly officiated as judges.

Class I.—For the best assortment of hives and other appliances of the apiary—First, 40*s.*, Messrs. Abbott Brothers, Southall. Class II.—For the best hive complete: first, 20*s.*, Messrs. Abbott Brothers. Class III.—Best exhibition of super honey in comb. the produce of one stock: first, 30*s.*, and second, 15*s.*, W. Martin, High Wycombe. Class IV.—Heaviest and best single super of honey in the comb: first, 30*s.*, J. Walton, Leamington; second, 20*s.*, W. Martin, High Wycombe. Class V.—Best exhibition of honey in sectional supers, the produce of one stock, the sections not to average more than 4lbs. each: first, 20*s.* J. Walton; second, 10*s.*, J. Brown, Woodcote Hall, Newport. Class VI.—Largest and best exhibition of run honey, the produce of one apiary: first, 20*s.*, J. Walton; second, 10*s.*, J. Brown. Class VII.—Best example of run honey, not less than 5lbs. weight: first, 15*s.*, C. Young, Horninglow; second, 10*s.*, W. Martin; third, 5*s.*, J. Walton. Class VIII.—Best show of wax in cakes: first, 7*s.* 6*d.*, J. Walton; second, 5*s.* W. Martin; third, 2*s.* 6*d.*, J. Brown.

Cottagers' Classes.—Open only to those in receipt of weekly wages. Class IX.—Best and most complete bar-frame hive, made by the exhibitor: first, not awarded; 2nd, 7*s.* 6*d.*, J. Brown, and third, 5*s.*, J. Walton. Class X.—Best and largest harvest of honey in the comb, the produce of one apiary: first, 10*s.*, J. Walton; second, W. Martin. Class XI.—Best super of honey in the comb: first, 10*s.*, P. Fowler, Lilleshall; second, 7*s.* 6*d.*, and third, 5*s.*, J. Walton; fourth, 2*s.* 6*d.*, W. Martin.

Extra Prizes.—Offered by the British Bee-keepers' Association.—I. (For members of the Association only): for the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems, accompanied by a legibly written explanation of the method adopted, with dates of swarming, supering, &c.: first, silver medal; second, bronze medal, no award. II. (Open, without restriction.)—For the largest and best harvest of honey in the comb, under similar conditions: first, silver medal; J. Walton. III.—Bronze medal to the cottager residing in the county of Staffordshire gaining the largest number of prizes in the cottagers' classes: no award. Extra prize of 20*s.*, given by the committee: George Lewis, for observatory hive of Ligurian bees.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

BEE-KEEPERS' ASSOCIATIONS.

Now the exhibition season of 1877 is about closing, I hope you will give me a little space for a wail over the British Bee-keepers' Association. At the last meeting of the members at the Alexandra Palace, I foreshadowed the springing up of provincial shows, which would compete with the shows held under the auspices of the Association; and that unless the latter took some energetic steps to keep up its *status* and ally itself in some way to such provincial shows, it would soon be a thing of the past.

It seems to me such a lamentable pity that such a large number of members, most of whom took some interest (it is to be supposed) in bee-keeping, should be allowed to be, as it were, scattered to the winds without some effort being made to place the Association upon its proper footing, namely, that of being the Parent Association of the kingdom, having its great annual or biennial gathering, and of affording countenance and assistance to provincial associations. Cannot some appeal be made to bee-keepers to lay aside jealousies which have crept in amongst them, and some arrangement made by which the Association can be resuscitated? Without a show, or some such attraction, I fear no great number of the old friends of the Association could be got together, yet I trust this appeal may give rise to some suggestion which can be well ventilated in the coming winter, and may lead to some good in the ensuing spring.—J. G. Desborough, *St. Peter's Hill, Stamford.*

THE EDINBURGH SHOW.

I read in the July number of the *Journal* with much pleasure and interest your glowing description of the Grand National Bee and Honey Show that was to take place in Edinburgh in conjunction with the Annual Exhibition of the Highland and Agricultural Society, and to be conducted by the Caledonian Apiarian and Entomological Association.

I resolved that at all hazards I should see this great national gathering of bees, honey, and, I hoped, entomological specimens.

I pictured in my own mind the vast array of cases and cabinets containing preserved specimens of all that is beautiful, useful, and injurious in insect life. For was not this an opportunity for an entomological society to exhibit their collections? Here ladies and gentlemen could go in ecstasies over the manifold hues of plumage in the various varieties of moths. Here the farmer and gardener could study the form, size, and mode of life of the several pests that injure or destroy their crops. Here, most interesting of all, would be our little favourites and their produce. Here we should see honey from John o'Groat's House to Land's End, in every conceivable shape and form, from the old billycock-hat-shaped skep smelling of the lower regions to the modern sectional, all gathered together to make a grand national show.

Methought if good old James Bonner were to rise from his ashes and view the scene,—to see at last the prayer granted of the 'humble memorial' he presented to this same society—but in vain—nearly one hundred years ago: would not he have poured blessings on the heads of every director and official of the Highland Society from H. R. Highness of Wales downwards? In his joyfulness and glee he would have treated every mother's son of them to a —glass.

With these and a thousand other reflections I wended my way to 'Edina, Scotia's darling seat.' Arrived at the Meadows, paid my half-crown, asked a well-dressed official-looking gentleman where the Caledonian Apiarian and Entomological Society of Glasgow's department was?

'The Calydonian Apy-en-tymology Society of

Glasgae! Are they cake or manure merchants?' 'No, sir, they are bee-keepers.' 'Ah! ha! the bees an' the tarlie beetles! richt doun that way whaur ye hear the drum beatin'; hast'ye, the performance is beginnin'.'

If I had not been so eager to see the Bee and Honey Show I might have saved the above conversation with my country friend, for between 'sensation' placards outside, and the deep base note of a gong sounding inside, no one could pass unnoticed the bee department of the show-yard.

A few minutes' observation inside the booth soon dissipated my day-dreams for the cases of entomological specimens, the cabinets of beautiful moths, the array of farm and garden pests, I had hoped to see were all comprised in a solitary specimen of that famous bugbear, the Colorado beetle, stuck up beside a turbine-wheel-like machine, which I learned was a 'new idea' observatory hive. Where the grand show of honey? The wretched season, the worst in the memory of man, accounted somewhat for the dearth of it. I noticed, however, that all the honey shown came from the west of Scotland, and on remarking that it was strange there were no exhibits from any other part of the kingdom, I was told that this exhibition was entirely the 'Caledonians'' Show, and if any outsider wished to exhibit or compete he or she had 3*s.* 6*d.* of entry money to pay; 2*s.* 6*d.* to become a member of the Association, and 1*s.* for each exhibit: 'for example,' said my informant, 'if you had (say) a new bee-feeder worth 6*d.* or 1*s.* to exhibit, you would have to pay 3*s.* 6*d.* entry money, and be liable for 2*s.* 6*d.* every year afterwards as a member of the Society."

As has already been noticed in the report of the show there was a large display of hives and bee-appliances, but it was almost impossible for one to examine anything quietly on some of the stands without being pestered by the salesmen pushing his literature on you and asking if you would buy this or that. A third of one firm's exhibits were old-fashioned, useless things far behind the times. For my part I looked at them much in the same way as I would look at articles in an antiquarian collection of curiosities.

I thought it was a pity that they did not have their stand in the implement-yard outside, where many more thousands would see their antique notions, and where their salesman would get scope for his talent, and have a chance of driving a brisker trade with the public.

The great attraction of the Show,—in fact the only attraction, were the manipulations so ably conducted by our Editor. The visitors were surprised and delighted to find bees those irascible little insects which everybody is taught from their infancy to shun and dread so completely under the control of the bee-master that they seemed to move about as at the word of command. During my sojourn in Edinburgh I met with many people, some bee-keepers, and others who know nothing of bees, and since that time I have met many who had been there and seen the bees, and the universal verdict was that if it had not been for the manipulations the Bee Show was not worth seeing.

The report your correspondent gave of it in the August number was fair and impartial. He said all that ought in justness to be said in its favour. Yet strangely Mr. Bennett complains of it in this month's *Journal*, because he did not puff up the whole affair as being something gorgeous. If bee-keeping is to be placed on a national footing and made useful as an important branch of rural economy, that end will be easier attained and much longer maintained by plain matter-of-fact means, and not by high-sounding titles and wind-bag descriptions.—J. S., *Arbroath, Sept. 13th*, 1877.

CHLOROFORM AS AN ANÆSTHETIC IN APICULTURE.

In last month's *Journal* chloroform is said to be a treacherous form of anæsthetic for bees. If properly administered this is not the case. To make it thoroughly effectual and safe, heat an ordinary mince-pie tin quite hot, place it quickly in the bottom of a pail, pour into it a small tea-spoonful of chloroform, cover with a piece of perforated zinc, and place the skep over the pail. Less than fifteen seconds will see every bee at the bottom of the pail, perfectly stupified, and the quickness with which the operation has been performed renders their return to consciousness certain. I have said skep, because when one uses bar-framers chloroform is unnecessary; smoke from smouldering rags or brown paper, and a little thin syrup, will enable any operation to be performed with ease and safety.—Arthur S. B. Miller, *Apiarian, Cambridge.*

HONESTY IN EXHIBITORS.

What steps can be taken to ensure honesty in exhibitors? Supers of honey are brought to local shows from all parts of the kingdom by people whom committees can know nothing about personally. They may be filled with syrup instead of honey; they may be last year's supers—for I venture to say that last year's honey, if kept in the super, would be in as good condition now as month-old honey of this year; they may be raised by others than the exhibitor. I do not write without reason. I have grounds for believing that one super, at least, has been shown this year which was not the produce of the exhibitor's bees. With the spread of bee and honey shows, temptations to fraud will increase. Again I ask, How are we to guard ourselves?—Sic Vos non Vobis (*a Hon. Sec.*).

TWO QUEENS IN THE SAME HIVE.

Since my communication of July 28th, and your expression of an opinion that the parent queen would soon prove useless, I have every day or two watched her career, and as yet have failed to observe any symptom of her decay. As I formerly stated I put her at the head of a swarm of strange bees, and, notwithstanding bad weather, I am pleased to observe that this swarm has, thanks to comb-foundation and constant feeding, almost filled its hive with comb, and is the only one I have which has never been without a large amount of brood. To-day there

are still three large sheets of it, and so far as I can see it is the only one of fifteen hives that is carrying pollen in any quantity.

But here is the strangest part of the affair. A few days after I had made the new swarm, I found a royal cell with a grub in it on a small piece of drone-comb which I had just excised. Why should the strange bees also be seeking to rear a successor to her majesty, since she seemed so fertile? To me a reasonable explanation was found in the fact that in both hives I had one or two sheets of imported foundation with 4½ cells to the inch. The brood reared in these combs turned out about half drones, and to my mind it appeared that the bees had been stupid enough to attribute the fault to the imperfect fertilisation of the queen. On observing this, I removed these sheets to the outside of the brood-nest, and was pleased to find that in a day or two the drones were mercilessly massacred, as if the directors were now satisfied. Stranger still is the sequel. Yesterday, on again examining this hive, what was my surprise to find *two queens* on neighbouring combs, both large, and so much alike that I cannot tell which is the older! Since the bees had destroyed all their drones more than a month ago I conclude that both queens are fertile, and have lived in amity at least that time. I shall not further interfere with them, but shall carefully watch the result. —William Raitt, *Sept. 17th.*

TWO QUEENS IN ONE HIVE.

I am of your opinion about Mr. Raitt's 'Two Queens in one Hive,' that the intention of the bees was to swarm, though, as he says, they were not strong, and had not filled their hive with comb. Although it is generally supposed that bees do not swarm until compelled by being over-crowded, I can give an instance which happened this year, in my own apiary, exactly to the contrary.

At the beginning of June I deprived a Ligurian stock of its queen, and, having none by me, left them to raise another. The bees covered what combs they had, but there were still three empty frames to fill which had wax-guides attached. Two young queens hatched out, and were both allowed to live—one leading off a swarm that would hardly fill a quart measure.

Though so small a swarm I did not return it (having a liking to hybrid queens), but put them into an eight-frame hive, and fed them occasionally, and now they will compare favourably with any stock I have. I might mention that both of these young princesses mated with black drones, although I had a quantity of Ligurians in my apiary.—B. E. E.

POISONOUS HONEY: AN APICULTURAL PARALLEL.

I beg to forward the following interesting extract from the Special Correspondent with the Turks in Asia of the *Daily News* of August 30th, and to append to the same a parallel incident, which occurred about 2200 years ago in the same locality,—'two marches from Trebizond,'—in the celebrated retreat of the 'Ten Thousand,' as narrated by Xenophon in his *Anabasis* (Book iv. ss. 19, 20):

'I can't help mentioning an incident which befell me at Kupri Kenyi, and which bid fair to bring the career of your Correspondent to a close. After a long ride under a scorching sun, through a plain traversed by dysentery-fraught water-courses, of which I dare not drink, I arrived at Kupri Kenyi, the point of junction of the Kars and Bajazet roads. I was parched with thirst, and rushed to the first khan to procure a draught of sherbet, as they style here any sweet, refreshing drink. The landlord, with whom, by the way, I had previously had some misunderstanding on account of his having stolen my overcoat and some other articles, and whom I had threatened to summon before the Pasha at Erzeroum, served me with a large bowl of water sweetened with honey. Immediately afterwards I repaired to the house of one of my friends, a Kaimakam, or lieutenant-colonel doctor. There I lay down for a brief siesta; but had not slept a quarter of an hour when I was awakened by an acute headache, accompanied by a painful sense of compression in the region of the spine. Shortly after violent vomiting set in, accompanied by a coldness in the extremities, gradually extending to the shoulders and hips. Then a cataleptic state ensued, and I was discovered by my friends apparently on the point of death. I was unable to speak, and had become totally blind, first in the right and then in the left eye. I was unable to perceive the faintest trace of light, even when regarding the full blaze of the mid-day sun. The doctor immediately pronounced my case as one of poisoning; and learning from my friends that I had been to the khan, and hearing moreover that I had had cause of dispute with the innkeeper, called on the governor of the town, and had the innkeeper arrested. At this point I was myself convinced that death was certain, and that the Khanidge had poisoned me. I was stripped, and my body rubbed with alcohol, and some medicaments were forced down my throat. Gradually the rigidity and coldness of my limbs disappeared, and I was able to speak, though but faintly. The innkeeper's honey was seized, and, on examination by a committee of doctors, was pronounced to be entirely poisonous. It came from the valley of Batoum, where hemlock and hyoscyamus grow abundantly, the honey of the entire district being, as a result, little short of deadly poison. Fortunately for me, vomiting had supervened, by which the great bulk of the poisonous matter was discharged, but even so my escape was narrow enough. I mention this incident as a warning to future travellers in Asia Minor, for few would suspect that death underlay so innocent a drink as honey and water.'

Extract from Xenophon (Bohn's translation):

'Having passed the summit the Greeks encamped in a number of villages containing abundance of provisions. As to other things here, there was nothing at which they were surprised; but the number of bee-hives was extraordinary, and all the soldiers that ate of the combs lost their senses, vomited, and were affected with purging, and none of them was able to stand upright; such as had eaten only a little were like men greatly intoxicated, and such as had eaten much were like mad men, and some like persons at the point of death. They lay upon the ground in consequence in great numbers, as if there had been a defeat, and there was general dejection. The next day no one of them was found dead, and they recovered their senses about the same hour that they had lost them on the preceding day; and on the third and fourth days they got up as if after taking physic.'

Poisonous honey is mentioned by Dioscorides, Pliny, and other authors. Pliny speaks of the poisonous qualities of the honey of the district of Trebizond, and attributes them to the bees frequenting a plant

fatal to beasts of burden, and to goats in particular. This plant he calls *Ægolethron*, or goat's-death, which, according to the *Pharmaceutical Journal*, is identified with *Azalea Pontica*.

Mr. Abbot, when writing from Trebizond, in 1833, to the Secretary of the Zoological Society, observed, that he had himself witnessed that the effects of the honey gathered by the bees in that district were still precisely the same as those described by Xenophon: he adopted the view propounded by Tournefort in 1704, that the poisonous properties were consequent on the bees extracting the honey from the flowers of the *Azalea Pontica*. This shrub is a native of the countries around the Black Sea; it grows from three to five feet high, and its golden flowers give great brilliancy to the landscape in the regions where it flourishes. The whole plant is narcotic and poisonous; its flowers yield a large amount of honey. — G. HENDERSON, *Ealing*.

SEASON IN KENT.

I have read your September number with regret and also with joy; the former because I see we in this county are not worse off than other bee-keepers in other parts of the kingdom, and the latter because you as our centre have given us such advice that I am sure every bee-keeper should read it, and not only read it but act up to it.

The season here, if it can be so called, has been a very bad one, the poor bees scarcely gathering enough to keep themselves. I have been trying this year to get swarms, but a first swarm from every stock is the most I have succeeded in getting. With regard to super honey I have not heard of a single super being taken. On the 23rd of last month I drove two stocks to show a cottager the humane way of taking bees, one was about seven years old, and the other about three years, and out of the two I should think I did not get more than nine pounds of honey. I am trying all I can to get the cottagers to drive, but it requires time to show them; one young man I have succeeded in converting, and now he drives and unites his bees instead of destroying them. Thanks to the first Crystal Palace Bee Show, for if it had not been for that I should never have attempted driving, but having seen it myself I can now go forward and show my poorer bee-keepers.—W. C. PUNNETT, F.M.S. &c., *St. Mary's, Tonbridge*.

SEASON IN WOLVERHAMPTON.

The following may be of interest to your readers as showing what may be done even in a bad year with bees in a large town (pop. 70,000), with (I should add, however) country at no great distance on three sides of it. No doubt with better management more might have been achieved. No. 1 stock (in Abbott's Cottage bar-frame) has made about 10lbs. of super honey. On return from a five weeks' holiday I took the first opportunity of removing this (I suspect that the bees had been beforehand in removing some), and found plenty of bees, a fair amount of sealed brood, and not more than 1lb. of honey in all the frames, all at the back of the hive as was most of the brood. Stimulative feeding has induced the queen to start laying again, as I find with pleasure to-day (Sept. 6th).

No. 2 stock (an old straw skep in the same bee-house) has filled with comb one third of a large nadir (made by Mr. Braddy of Kelvedon, Essex, and capable of holding 40lbs.) These combs were about half full of honey.

No. 3 stock (in Abbott's 1875 prize bar-frame hive) had few bees and frames, some only partially filled, with some almost bare of comb at the beginning of the season. The bees, to which the population of a straw skep was added in May, have not succeeded in filling all their frames, but they have stored a fair quantity of honey for winter use, and there is a good amount of sealed brood, but none in earlier stages; the queen in spite of feeding not having been yet stimulated to recommence. On the whole I have got little, but stand well for next year.—W. J. FRERE.

LIGURIANS—QUIETING BEES

I find the Ligurians here unquestionably visit flowers neglected by the black bees. The *Tritonia Uvaria* (red-hot poker) containing much honey is never visited by blacks, but greedily by the Ligurians, who keep off the wasps, who used before I had Ligurians to be its only visitors. Of other flowers at present open the giant sunflower and the blue passion-flower are visited by Ligurians, never by black bees.

In handling bees and hives I always wear a bee-veil, as a protection against the few splenetic bees that occasionally are met with. But I never use anything to quiet the bees, neither smoke, syrup, nor anything else. I find it wholly unnecessary. I have once this year been attacked by the bees; this was in turning up an old rotten skep belonging to a neighbour, which was so firmly propolized that much disturbance resulted before it could be loosened, and I got stung on the hands. My own bees, which I suspect I handle perhaps more than is good for them, are always good-tempered. The secret, if there is one, appears to be to fully open the hive gently but quickly. The breath is said to anger bees extremely, and it may be easily made to do so, as may be tested by blowing gently at the entrance of a hive and then looking in. But I find that several strong puffs in at the entrance, produce as quieting an effect as so much tobacco or thin smoke, whilst a slight puff on a comb under examination will make the bees on it run out of the way as may be desired. The season here has been very poor, but not so disastrous as by reports it has been elsewhere. I have very little or no honey, but I have increased and strengthened my stocks which seem well provisioned.—T. A. CHAPMAN, *Hereford*.

A LARGE CARD OF COMB.

A swarm of bees settled underneath one of the sheets of an iron house at Yeovil Junction, Somerset, some years ago, and the place has been

regularly occupied since that time. Last month Mr. W. Martin, 'the beeman' of High Wycombe, who was visiting in the neighbourhood, was requested to dislodge them. This he succeeded in doing. One of the cards of comb measured about four feet by two, and the stock was very strong. The frames of a wooden hive were speedily filled, and the queen having been secured, the bees soon settled quietly into their new domicile, where they are working splendidly.

THE SMELATOR.

Enclosed is a bit of information copied from the 'Scientific News' column of the *English Mechanic and World of Science* of Sept. 14, 1877. Fancy a paper that professes to give a weekly summary of scientific inventions and discoveries being so far behind with this phase of bee-keeping.—J. S., *Arbroath.*

'In the Eifel, which produces a great deal of excellent honey, centrifugal force is now used to separate the honey from the wax. This gives a greater yield and better quality than the old method of pressing, and the wax cells are so little deteriorated that the bees can repair them easily; and having less wax to produce, they give more honey. The apparatus used consists of a wooden tub mounted on a vertical arbor, and rotated by quickly unwinding a cord which winds anew as the motion continues. This is repeated several times. Before inserting the honey-comb which is contained in shallow troughs, the tops of the alveole are opened carefully with a knife. The honey flows to the bottom of the tub and passes through a sieve into stone pots. After each operation the combs are turned and placed so that the opening of the cells is directed outwards. To clear the tub, it is placed in the sun in the neighbourhood of the hives, and the bees collect the honey which remains. Honey obtained by this process sells 65 centimes per kilogramme dearer than ordinary honey.'

[NOTE.—This is the kind of *information* (?) the public accept, and act upon, simply because some copyist sends it to a journal whose editorship is without a knowledge of the subject. The machinery described is, like the *information*, out of date, and valueless.—ED. *B. B. J.*]

HONEY EXTRACTOR *VERSUS* SMELATOR.

By all means, Mr. Editor, let our elders assemble in solemn conclave, and evolve out of the depths of their inner consciousness a new name for the article yclept 'Honey Extractor;' which name of itself, besides being inelegant, unsuited to 'ears polite,' in nowise expresses its use, and moreover it is very difficult of comprehension. Pshaw! 'Honey Extractor,' like butter-churn or tar-pot, is much too simple and transparent for any except simple, vulgar people! If I might be graciously permitted to put my 'spoke in the wheel,' might I in all humility suggest to the powers that be that instead of altering the name to 'Smelator,' for the future it be named the 'Hunny-runny?' The latter is at once expressive, is full of rhythm, and of a sweet cadence, mellifluous as a love-making nightingale in a hawthorn-wood at midnight. 'What's in a name?' A great deal, my dear Shakespeare! Well, 'Smelator' (see page 86) *might* do—*perhaps.* It is also, I am happy to observe, of highly respectable parentage. But let that pass; let us waive both, and come at once to the full-blown '*Honigschleudermaschine.*' 'Think of that with fear and trembling, Master Brook!' In the interests of society generally, and of British bee-keepers in particular, I venture to express the hope that the printer will be good enough to copy the word correctly. I shall be all the more indebted to him if, in the due exercise of his discretion, he will stretch it all across this page, to give due prominence—

'HONIGSCHLEUDERMASCHINE!'

By Isis, it is sublime! and, like Lawless's last pair of Tweed inexpressibles, 'too good for this wicked world by a great deal!' Thirdly and lastly (by-the-by this is a phrase I borrow for the occasion from our esteemed vicar—it is really a very nice way of finishing either a letter or a sermon), I readily admit that as the German bee-keepers—in some instances in advance of those of old Albion—first brought forth the Honey Extractor into the world, it is but fair that they should claim priority in selecting a name for the 'chiel;' and so, ladies and gentlemen, for the future let it be '*Honigschleudermaschine!*'—A. R.

TRANSFERRING BROOD FROM STRAW TO WOOD.

I have been experimenting for some time to find out the best way of fixing the brood-combs out of straw hives into wood hives.

In my first attempt I put a temporary bottom rail on the bar to contain the brood, then fixed the brood comb in with splinters of wood ⅛ of an inch square lightly tacked to the top, bottom, or sides of the bar where necessary. The bees were dilatory in fastening the combs, and in places fastened them to the splinters, in others cut away the comb and brood either to make passing ways round the splinters, or because the splinters interfered with them raising the brood.

In my next attempt I put no bottom rail, but passed narrow red tapes under the brood-comb, and tied them on the top of the bar bringing the combs tight against the top bar; the bees at once nibbled away the tapes and dropped the combs in the bottom of the hive.

My third plan was a temporary bottom rail, and after fitting the brood in I passed two lengths of spindle banding (a soft, very durable cotton twine used in the mills here) under the bottom rail, and tied them over the top of the bar. I then made two long staples of stout wire square at the top, just to admit the bar, and the legs long enough to reach a quarter of an inch below the bottom rail: this answered very fairly, but was too much trouble.

This year I have got some lead wire, and am very much pleased with it; a pair of common scissors will cut it very easily, it is almost impossible to break, it can be made perfectly straight by just pulling it through the hands, it can be bent round top or bottom bar with thumb and finger if corks are required to stand on the bottom bar to support

the comb, a bit of wire passed through and the ends turned under or over the top or bottom rails holds all firm, all the lead wire may be cleared away in a few minutes when the combs are fast with a pair of fine-pointed scissors ; I have used nothing but lead wire this year, and the bees seem as well pleased with it as I am. I prefer not having the combs quite against the top bar, and it requires a fairly strong hive of bees to fasten combs quickly and well. Perhaps this is stale news to some of your readers, but it would have saved me much trouble four years ago, all my bees died of foul brood. This spring I destroyed the bars, melted the combs, scrubbed the hives with hot water and soap, dipped them in carbolic acid and water, limewashed them, let them stand in an airy place two months, brought bees from a distance, and am feeding up for the winter.

Has any one noticed in hives infected with foul brood the amount of self-scrubbing the bees indulge in on the flight-board ?—R. H. C.

DRIVING AND UNITING.

Since my visit to Sherborne Show, where I saw the process of 'driving' for the first time, I have tried and succeeded in thus emptying fifteen skeps for some of my parishioners and others, to save the bees from burning. But in uniting stocks I have not been as successful—many hundreds if not thousands of bees were killed and cast out by former tenants of my box-hives. I did not remove any of the queens—but I scented *all* with peppermint syrup. Possibly I did not do this sufficiently. Can you tell me what was wrong ?

RECTIFYING COMBS.—What is best to be done with a box-hive in which the combs have been built irregularly, and not on the frames? Should it be left as it is till the spring and the bees swarm ? F. S.

[All bees to be united at this time of year should be driven out of, or deprived of their combs so that they may be reduced to a common state of poverty and have nothing to defend. Sprinkling with thin flavoured syrup will destroy their identity ; and if united and well mixed while in that condition they will frateruize, and their combs (after sprinkling) may then be returned to them with little fear of fighting. The operation should be done at evening, and after reading the hints in the June and September No. of *Journal*.

To rectify combs built across a bar-frame hive, drive out the bees and lift out all the combs and bars together, carry them into a place inaccessible to bees and proceed as in transferring, cutting the combs out and refitting them in the frames. If there be much drone comb, it can either be left out, or fitted into the side frames. Do not leave any in the centre of the hive as the worker-bees cannot conveniently pack themselves into the cells for wintering.—ED.]

PARIS INTERNATIONAL EXHIBITION, 1878.—Applications for space by British apiarians desirous of exhibiting their wares at the forthcoming exhibition, should be forwarded, as early as possible, to Mr. Fox Kenworthy, Hon. Sec. to the Britis Bee-keepers' Association, The Park, Ealing, W.

Echoes from the Hives.

Greenock, August 22nd.—'I have delayed till now acknowledging receipt of the two Ligurian queens in order that I might be able to tell you of the success of their introduction. I am happy to be able to say that they arrived in splendid condition. One was for myself, and another for a shoemaker here, who is a great 'bee hand,' and who helps me to handle my bees. They arrived here on a Friday night, and I gave them their liberty on the Saturday. On Saturday morning we took the comb on which the native queen was from a cottage-bar and frame hive and placed the frame with queen and bees in an empty straw skep in case of accidents, and at night introduced her Italian majesty in a Raynor cage, in which we left her till Monday forenoon. When we gave her her liberty she was received by her new subjects with every token of respect, and now the combs are full of brood. I hear that the shoemaker has also succeeded perfectly in Ligurianizing his hive. The weather here has been very bad for bees, almost continuous rain since the end of June. In July I was much from home, and on my return about the third week found the bottom boards of many hives heaped up with dead bees. The heather is in bloom at present, and if we get a fortnight of good weather we may weather the winter without feeding, but I am afraid we will have no honey harvest.' —JOHN IRVING.

Worcestershire, August 29th.—'I am quite satisfied with the *B. B. J.*, but have little time now to devote to bee-keeping, owing to an increase in business engagements and which take me much from home. I am almost persuaded to part with my pets rather than neglect them, as I have done for the last few months; but don't like to abandon the pursuit after being at so much trouble in making (thanks to your directions) Standard bar-frame hives (two), slinger, supers, &c. &c., and partly mounting small circular saw for the work.

'It goes terribly against the grain to sever oneself from so fascinating a pursuit. The first of the month is eagerly looked forward to in the hope of a feast with the *Journal*.

'Wishing you continued and increased prosperity in your good work.'—J. P.

THE NEW IDEA.—*Farnboro, Hants, August 29th*, 1877. —'I have taken a case to-day from a stock-hive weighing about 9 lbs. by your new idea plan, which, by-the-by, I had thought of two or three years ago, but never tried it before this summer. I did not provide any passage for the queen past the enclosed frame, and I find the bees have reared a new queen on the side the queen was not, although there was perforated zinc on both sides.'—W. T. JOYCE.

Kelvedon, Essex, August 30th.—'My bees during the past season have gathered just about half the amount of honey they did last year. Instead of the 1000lbs. of last year, I shall have this year about 500lbs. ; but I should say that I sold three of my best stocks in the spring to gentlemen who wanted a good start. The heaviest nadir I have taken this year is 44lbs. ; but many of them are well combed, a good start for next season. I quite believe if the season had been as good as the last, I should have reached 1500lbs., the stocks all took to the nadirs so readily ; one reason might be, most of them having been used before, which is a great recommendation to the bees.'—W. T. B.

Tisbury, Sept. 4th.—'The season with me, though much inferior to that of last year, is far superior to that of 1875. I think that all my stocks, except two, will winter without feeding. I weighed four hives (straw) this evening—weighing respectively 28lbs., 34lbs., 36lbs., and 46lbs. My son was much pleased with the manipulations of Mr. Abbott, jun., at Sherborne.

Copenhagen, Sept. 4th.—'I now proceed to tell you that such a *poverty* year as the one we have gone through is admirably calculated to weed out all lukewarm cultivators of the pleasant art of apiculture.

'In this part of the country bee-keeping has this year been a failure, few swarms and little honey—indeed, considering what weather we have had, it is a wonder that the bees have gathered in so much as they have; our chief reliance here is on the lime-blossom, and while the trees were in flower the weather was all that could *not* be desired. Our main work now consists in concentrating stores for the winter, and "making both ends meet," and pleasant anticipations of the fine season we shall have next year(?).'—J. R. C.

Slinfold, Horsham, Sept, 13th.—'This has been a very bad year for honey about this neighbourhood. I have bees enough to have gathered six or seven hundred pounds of honey, but I have not half that quantity. Although this part is good for bees, there are thirty acres of fruit trees not a quarter of a mile from my cottage, and there are 30,000 pear-trees, beside others, and all are in full bloom; and a very pretty sight it was at the time: but I do not think the bees got a pound of honey from them, it was so cold and wet. I have tried the perforated zinc for the first time (same as Mr. Cowan's), with bad success, I find so many dead bees in the super, how do you account for that?'—M. F.

[Bees must die when their time comes whether in supers or not, and if they die on the wrong side of the zinc, there is great difficulty in others removing them. It is not that the zinc kills them, but it prevents them being carried out. There have, however, been cases where the accumulation of dead bees has prevented the passage of the living, and many have died of suffocation. Mr. Cowan's method includes bee-traps to enable bees to leave the supers without passing through the stock hive. —Ed.]

Sleaford, Sept. 13th.—'I think the Leaflets are very valuable, and intend lending them to those friends of mine who have little time, and less inclination to read a large book on bees. Our friends at Sleaford feel that a great deal is due to you for the interesting position that bee-keeping or apiculture now occupies.'—J. M.

Meigle, N.B.—'On Sunday Sept. 16th, a hive of bees belonging to Alexander Guild, merchant, Meigle, swarmed and alighted on a bush in the parish minister's garden.' —C. F.

Guildford, Sept. 18th.—'Sorry to find so long a lament from you in the *Journal* for this month, but surely it is all counterbalanced by the conversion of Mr. Pettigrew to bar-frames.

'The honey harvest in this locality is, I think, on the whole pretty good. As regards my own apiary, things there have assumed rather an irritating turn. I started this year with fifteen stocks, hoping to double that number by the end of the summer, by swarms, but 'not a sou' of a swarm have I had. One stock I lost from starvation; this, so far as numbers are concerned, I recouped by dividing a strong stock, and Ligurianizing one portion thereof in May last—the act was successful, but although I had soon a good Ligurian stock, I have reaped no harvest from them.

'Having been anxious to get swarms, I did not commence supering until the later part of the season, still from six hives I have taken about 70lbs. of super-honey, some of which has been very good.

Uniting.—'A friend in this locality, and myself are sceptical as to the process of uniting stocks in the autumn, or rather the utility derived therefrom. Our experience here is not encouraging. I had a good cast last year which after it had filled a small hive with honey I transferred to a ten bar-framed hive, adding thereunto two good driven stocks, obtained from a distance, they wintered well, but have done little or nothing all this summer, save keep themselves. I do not think they can of themselves go through the winter.

'My friend's experience is on a par with my own, therefore we are sceptical as to utility. What is the experience of others who have tried this uniting? We shall be pleased to learn.'—F. H. L.

Banbury.—'It has been a dull summer here for bees. I had twelve stocks at the commencement of the season, nine of them swarmed. I sold six of the swarms, and hope again to winter twelve stocks. I am feeding them up to condition, and have not a drop of honey to take from any of my hives, and several of them are quite light in weight; these are, however, increasing in weight, by the syrup supplied to them through one hole, and if they are not up to the required weight early next month, they shall be fed rapidly till they attain to it.'—J. E.

Salisbury.—'The yield of honey about here does not seem to be so poor as it is in other places. Upon weighing some late swarms lately, I found the average weight to be about 22 lbs., which is not bad, considering the poor weather we have had here.'—H. A. K.

The Value of Drones.—'I noticed correspondence in last month's *Journal* on the subject of the usual prosperity of hives in which drones are numerous. Such a belief prevails here amongst skepists generally. May it not be accepted without interfering with the theory that a minimum quantity of drone-comb is preferable? Stocks which begin breeding early and proceed vigorously, with each successive hatch of brood will breed successive drones, the queen laying eggs in the cells as soon as the young bees vacate them; so that many drones would be indicative of numerous bees, and hence the hive's prosperity. The proportion of drones would *seem* greater as they generally fly in the middle of the day, whilst the bees are supposed to work by relays.'—J. J. H.

A PLEA FOR BEE-CULTURE.

Extract from the memorial of the Caledonian Apiarian and Entomological Society, to the Highland and Agricultural Society of Scotland. President, his Royal Highness the Prince of Wales:—

'Your Memorialists humbly approach your august body with all the greater confidence when they remember the anxious desire of the Directors of your Society to discover fresh channels of usefulness, and they may be pardoned adducing the fact that apiculture is decidedly the most neglected branch of agriculture, for the hundreds of tons of nectar annually secreted on our clover fields and heath-clad hills are actually allowed to go to waste, while this country pays away large sums of money every year to the foreigner for what can be had for the harvesting at home. The high price of provisions with us, particularly what is usually termed "Kitchen," induces many abominable imitations of butter, &c. Were honey so abundant as to be brought within the reach of all, it would make a wholesome and, particularly to the young, a most delicious substitute; therefore bee-keeping is much fostered and encouraged in France, Germany, and the United States, and these countries, besides meeting all home consumption wants, are now large exporters of honey and wax.

'The desire to place apiculture under the fostering care of our national Agricultural Society is by no means a modern idea, for we find Bonner, who published his standard work on bee-keeping in 1795, and at one time kept bees in a garret in the centre of Edinburgh, dedicated that work to your Society as his natural patrons; and so did Howatson of Humbie in 1827; and further on in 1829, nearly half a century ago, the talented authoress, Miss Clementina Stirling Graham of Duntrune House, Dundee, the lineal descendant and representative of the old family of Graham of Claverhouse, translated from the French

De Gelieu's work, and also dedicated *The Bee Preserver* to your Society. In the dedication she says, "The work is singularly adapted to forward the views of the Society who have this year (1829) turned their attention to the encouragement of apiaries among the peasantry of our own country." That venerable lady still survives, and, although burdened with the weight of 95 years, spiritedly writes us of the interest she still retains in apiculture, and that her work was presented to your Society by Sir Walter Scott, and she received a silver medal in acknowledgment. [Since this Memorial was presented to the Society, we have had to lament the death of this estimable lady.—Ed.]

'In the more remote past Scotland had taken an intelligent grasp of apiculture. Over 200 years ago we find from the Transactions of the Royal Society (of Gresham College, London, p. 6076, No. 96, dated 21st July, 1673), there is given 'A Description of a Bee Hive useful for Preventing the Swarming of Bees, used in Scotland with *good* success.' It is very much to be deplored that for lack of means of circulating information the deepest ignorance yet remains in many districts; the old straw skep and swarming system, with its cruel brimstone pit termination, generally prevailing.

'The great advantage of keeping bees in colonies on the non-swarming system, depriving them of their surplus store without injuring a single bee, by a separate super or compartmental chamber arrangement, enables the bee to classify while storing, yielding up the purest and finest description of virgin honey distinct and free from pollen brood and all the impurities pressed together in the heterogeneous mass from the common skep system. The value of frame hives, for ascertaining at once their internal condition, building up by interchange of combs both the population and store to a nearly perfect equality; the value of *fresh blood* in the apiary, as illustrated by crossing our old black aborigines with the Italian Alp bee, introduced into this country of late years; the flood of light their dissemination let in on the natural history of the insect, their beauty of colouring and distinctness of banding proving the distance the bee flies to forage, the longevity of the worker, the distance to which drone influence extends, afford a most useful lesson to all stock breeders, of the care with which Nature wards off constitutional degeneracy attendant on in-and-in breeding, amply illustrated in the pages of the *British Bee Journal*, and would be fully explained to the visitors at all our exhibitions; and it is almost unnecessary to point out that enlisting the interests of all agricultural cottagers in that invaluable insect the honey bee, a better rent-payer than the pig, a home attraction and counteractive to the public-house, is surely an object well worthy of your distinguished patronage.

'It may at first sight appear a startling proposition to introduce living bees into a stock show-yard, but it must not be overlooked that by a wise provision of nature the honey bee, while absent from its hive is as harmless as a fly, on both hill and dale freely feeding side by side with the varied animated sections of your exhibitions; the bee only uses her sting in self-defence to preserve the hard-earned treasures of her waxen citadel, and in proof of this, where living bees have been freely introduced in the South to agricultural and horticultural exhibitions without the slightest injury to man or beast; but to guard against the bare possibility of pain to any one, we would be content with a portion of your show-ground in the Implement department away from the stock; and to inspire the fullest confidence of protection from stings during manipulation with living bees, your Memorialists are prepared, at their own cost, to bring down from London a skilled operator, with a 20-feet screened tent, so that the manipulations may be witnessed by the most nervous ladies without the slightest risk.—A. C. Campbell, *President;* Robert J. Bennett, *Vice-President;* John Wilkie, *Vice-President;* William Sword, *Vice-President;* John Henderson, *Secretary.*

BEE-BIBLIOGRAPHY.

The following list, ample as it is, cannot be said to comprehend a complete *Bibliographia Apiaria*. It has been calculated that up to the present time about 2000 books and articles in scientific periodicals have been written in different languages on the subject of bees. This does not include articles in serials of a popular and unscientific character, or those written in journals devoted solely to bee-culture. In placing this list before our readers, we venture to think its special merit consists in the chronological arrangement of the titles, whereby a good idea may be gathered of the literary history of the subject, made available for the English reader by a careful translation of the foreign titles.

We take this opportunity to say a few words about some of the more important of the bee-bibliographies, and at the same time to point out the sources whence additions to the lists already given in the *British Bee Journal* may be largely made.

Arthur Young, in one of his charming works on husbandry, which will always be read with profit and pleasure, tells us that few subjects of rural economy have been so fully treated by English writers as that of bee-keeping. It is thus only fit that one of the earliest lists of bee-books is to be found in English—*Essays on Husbandry*, by the Rev. Walter Harte, Canon of Windsor (1764 and 1770, 8vo), a book highly thought of in its day. The reverend author describes over seventy writers who have devoted their pens to apiarian topics. M. Charles Nodier, in his *Bibliographie Entomologique* (Paris, 1801, 8vo), pp. 51–56, gives a notice of some books. In the year 1803, M. Huzard, a distinguished French writer on rural economy, was requested by the Société d'Agriculture de Paris to draw up a '*Notice bibliographique raisonnée des ouvrages publiés sur les Abeilles*,' which was inserted in the *Mémoires de la Société d'Agriculture du departement de la Seine*. This compilation was very carefully made, and to that date was most full and exact, the different works being classified in chronological order.

The Germans, with that thoroughness which distinguishes all their literary undertakings, were early in the field. Their first contribution is by Johann Riem in his *Bienenbibliothek*, Breslau, 1776–8, 2 vols. 8vo.; then we find *Unterricht für Bienenfreunde, von M. H. von Luettichau*, Dresden, 1782, 8vo., and a similar book by *J. C. Gotthard* in 1795. A useful book for the date was *Bibliographie der Bienenzucht* [*von J. S. Gruber*], Nürnberg, 1800, 8vo; and in 1829 we find *Neuestes vollständiges Handbuch der Bienenkunde und Bienenzucht, von K. G. Raschig*, Berlin, 8vo. But by far the richest collection of bee-books published up to 1861, but unhappily restricted to those of Germany and Switzerland, is *Bibliographie für Bienenfreunde, oder Verzeichniss der in Bezug auf die Bienen von* 1700 *bis Mitte* 1861 *in Deutschland und der Schweiz erschienenen Bücher und Zeitschriften, herausgegeben von Adolph Büchting*, Nordhausen, 1861, 12mo. A very complete list will be found in *Bibliotheca Entomologica: die Litteratur über das ganze Gebiet der Entomologie bis zum Jahre* 1862, *von H. A. Hagen*, Leipzig, 1862–63, 2 vols. 8vo. This in-

cludes books in all languages, as well as articles in periodicals. As may be expected, it is much more satisfactory in German, French, and Italian literature than in English books; but up to the date of publication Hagen's *Bibliotheca Entomologica* contains the most complete general bee-bibliography extant, made very easy of reference for the branch of entomology which interests us by an elaborate classified index.

The following catalogue, together with that in our June number, may be considered to be the largest contribution to bee-bibliography which has hitherto been made in this country. We have not exhausted the titles of books which have been forwarded to us; but we have reason to believe that it would be desirable, at least for the present, to close the subject. Should any of our readers desire further to prosecute the study, we have indicated in our preceding remarks the sources from which they may be enabled to gratify their wishes.

APIARIAN LITERATURE, IN CHRONOLOGICAL ORDER.

16th and 17th Centuries.

Jacob, Nic. (German). Instructions on the Management of Bees. Gorlitz, 1568. 2nd edit. 1653; 3rd edit. 1773.
Constant, P. Les Abeilles. Paris, 1582. 2nd edit. 1599.
Picus, A. (German). Short instructive book on Bees. Prenzlau, 1596. 2nd edit. 1795.
Cantipratane, Th. Two books of Miracles, &c. Duaci, 1616.
Gil, J. (Spanish). Management of Bees. Saragossa, 1621.
Mendès de Torrès, L. (Spanish). Short Treatise on the Management of Bees. Madrid, 1646.
De Montfort, A. Description of the Honey-bee. Liège, 1646.
——— Le Printemps de la Mouche à Miel. Anvers, 1649.
N.* Mode of Increasing Income by Bees. London, 1655.
Grützmann, J. (German). The New Apiary, or Treatise on Bees. Halberstadt, 1660. 2nd edit. 1669.
Thurm. Dissertatio de Apibus. 1668.
N. Treatise on Bees. Brussels, 1672.
Grützmann, J. (German). The Careful Bee-master and Bee Pharmacy. Osnaburgh, 1674. 2nd edit. 1697.
——— Observations on Bees, &c. Halbertstadt, 1680.
Horstler. (German). Bee-keeping. Leipzig, 1680. 2nd edit. 1700. 3rd, 4th, 5th, and 6th edit. 1753.
John, M. (German). New Treatise on Bee-keeping, with a Discourse on the Usefulness of Honey and Wax. Fribourgh, 1684. 2nd edit. 1691.
Harder, J. (German). Science of Bee-keeping. Bâle, 1687.
N. (German). The Apiarian. Magdebourgh, 1689.
N. Traités des Mouches à Miel. Paris, 1690. 2nd edit. 1696. 3e édit. 1697. 4e édit. 1714.
Moeller. (German). Honey. Jena, 1691.
N. Treatise on Bees. Grenoble, 1692. Amsterdam, 1699.
Gruwel, J. (German). Suburban Bee-keeping. Berlin, 1693. 2nd edit. 1762. 3rd edit. 1773.

18th Century.

N. (German). Instructions for Taking Care of Bees. Coburgh, 1702.
N. (German). Queries anent Bees, with Luppen's Experiences. Hall, 1707.
Boeck, J. A. (German). Description of Bees. Neustadt, *s.l.* 1709. Hanover, 1718. 3rd edit. 1721.
Müller, P. (German). Apiarian Jurisprudence. Jena, 1711.
Maraldi. Observations on Bees. Paris, 1712.
Herwig. (Danish). Useful Book on Bees. Copenhagen, 1723.
Voigt, J. Ch. (German). Natural Observations on Bees, and Inquiry into one of their Diseases (Foulbrood). Schwartzbach, 1725. 2nd edit. 1775.
Wald, Trie. (Swedish). Useful Treatise on Bees. Stockholm, 1728.
Swammerdam, J. (Dutch). The Bible of Nature. Leyde, 1737. Leipzic, 1752.
Simon, J. Le Gouvernement admirable, ou la République des Abeilles. Paris, 1740. 2e édit. 1748. 3e édit. 1758.
Schrott. (Germau). Correct Bee-keeping from Nic. Jacob and G. Horstler. Leipzic, 1741.
Koch, J. H. (German). The Experimental Bee-keeper. Nordhouse, 1747. 2nd edit. 1760.
Schubart, J. R. (German). Treatise on Bee-keeping. Leipsic, 1747. 2nd edit. Zullickau, 1754.
Duhamel. Observations Economiques sur les Abeilles. Paris, 1754.
N. (German). Economical Management of Bees. Leipzic, 1755.
Maurias. Secrets Chinois pour la Construction de la nouvelle Ruche d'Abeilles. Paris, 1756.
Schlotte, D. (Danish). Bee-keeping. Copenhagen, 1756.
Scherffer, C. Dissertatio de Cellulis Apium. Vienna, 1760.
Kraeutermann, V. (German). The Experimental Bee-master. Arnstadt, 1762. 2nd edit. Eisenberg, 1793.
Walpurger, J. G. (German). The Great God in small things. Chemnitz, 1762.
Boissier de Sauvages. Observations on the Origin of Honey. Nîmes, 1763.
Lapoutre. Traité Economique sur les Abeilles. Besançon, 1763.
Schaeffer, J. Ch. (German). The Mason-bee. Ratisboune, 1764.
N. Mode of Managing Bees. Châlons, 1765.
Overbeck, J. A. (German). Glossarium Melliturgicum. Brême, 1765.
Eyrich, J. L. (German). Theoretical and Practical Bee-keeping. Offenheim, 1766. 2ud edit. Frankfort, 1767. 3rd edit. Nuremberg, 1771. 4th edit. 1774.
Kaestner, A. G. (German). History of the different Treatises on Apiculture in Brunswick, &c. Gœtting, 1766.
De Massac. Mémoire sur la Manière de gouverner les Abeilles. Paris, 1766 and 1790.
Schirach, A. G. (German). The Bee-keepers of Saxony and the Hive of Palteau. Leipzic, 1766. 2nd edit. 1789.
——— (German). Papers and Transactions of the Apiarian Society of Upper Lusatia. Dresden, 1766 and 1767. 2 vols.
N. (German). Treatise on Bee-keeping. Hanover, 1766.
Werner, D. (German). Guide for Bee-keepers. Hanover, 1766-7.
Hirsch, J. E. (German). The Bee-keeper of Franconia. Nuremberg, 1767 and 1770.
Schirach, A. G. (German). Melitto-theologia. Dresden, 1767.
Eyrich, J. L. (German). Rules of the Apiarian Society of Franconia. Ausbach, 1768.
Du Houx. Essay on the Management of Bees in Straw Hives. Paris, 1769.
Gleditsch, J. G. (German). Notes on Bee-keeping in Brandenburgh. Riga, 1769.
Griesinger, J. J. (German). Complete Work on Bees. Ulm, 1769.
Hartwig, Ch. H. (German). Instructions on Apiculture. Leipzic, 1769.
Reim, J. (German). The Best Mode of Bee-keeping in Palatina. Manheim, 1769.
Schirach, A. G. (German). Apiculture of Saxony. Leipzic, 1769. 2ud edit. 1784.

* N. equivalent to Anonymous.—Ed.

Eyrich, J. L. (German). Papers and Transactions of the Apiarian Society of Franconia. Nuremberg, 1770-1773. 2nd edit. 1774.
Baumer, J. P. Dissertatio de Cultura Apium, imprimis in Thuringia. Erfurt, 1770.
Bonnet, Ch. Lettre sur les Abeilles. Paris, 1770.
Joli. Lettres sur les Mouches à Miel. Paris, 1770.
Schirach, A. G. (German). The Art of Making Swarms. Bautzen, 1770.
——— (German). Bavarian Bee-keeping. Munich, 1770.
Blanchon. Natural History of Bees; or, The Art of Forming Swarms. Paris, 1771.
De Boisjugau. Nouveau Traité d'Abeilles et Nouvelles Ruches en Paille. Caen, 1771.
Braun. (German). Patriotic Appeal to the Peasantry of Baden on Bee-keeping. Carlsruhe, 1771.
De Cuinghien. La Sauvegarde des Abeilles. Bouillon, 1771.
Duchet. Culture des Abeilles. Fribourg, 1771. 2 vols.
Eyrich, J. L. (German). Scheme of Bee-keeping for all Countries. Nuremberg, 1771.
Hase, K. L. (German). Complete Treatise on the Bee-keeping of Brandenbourg. Berlin, 1771-1774.
Janisch, J. A. (German). Treatise on Swarms. Vienna, 1771. 2nd edit. 1774.
Korsemka, A. (German). Bavarian Apiculture. Munich, 1771.
Kurella, M. (German). Notes on Ancient and Modern Bee-keeping in Prussia. Koenigsberg, 1771.
N. (German). Instructions to the Villagers of Nassau on Bee-keeping in Storifying Hives. Carlsruhe, 1771.
Neidhardt, J. J. (German). The Bee-correspondent of Franconia and Baden. Ansbach, 1771.
Reinhardt, J. J. (German). Frank Exhortation on Apiculture to the Peasantry of the Grand Duchy of Baden. Carlsruhe, 1771.
Zehrpfennig, J. A. Complete System of Bee-keeping. Dusseldorf, 1771.
De Gelieu. Nouvelle Méthode pour former des Essaims artificiels. Neufchâtel, 1772.
N. (German). The Useful Bee, &c. Frankfort, 1772.
Steinmetz, J. F. (German). Natural History of different kinds of Bees. Nuremberg, 1772.
Ammermüller, L. G. (German). The newest System of Managing Bees. Tubingue, 1773.
Biener, C. G. Disputatio Juris Romani et Germanici de Apibus. *s.l.* 1773.
Decker. (German). Labours of the Apiarian Society of Upper Lusatia. Berlin, 1773-1776.
Gabriel, P. (German). The Flower Garden, &c. with a Treatise on Modern Bee-keeping. Tubingue, 1773.
Krünitz. (German). The Main Points of the History of Bees and Bee-keeping. Potsdam, 1773. 2nd edit. 1783.
Kurella, M. (German). Practical Bee-keeping. Mitau, 1773. Halberstadt, 1792.
Seeger, J. G. Dissertatio de Apibus. Resp. C. G. Beiner. Leipsic, 1773.
Sprenger, B. (German). Introduction to Modern Apiculture. Stuttgardt, 1773.
Schwan, Ch. F. (German). Principles of Bee-keeping. Berlin, 1783.
N. (Toeldi). (German). Short Instructions on Bee-keeping in Hungary. Presbourgh, 1773. 2nd edit. 1784.
De Lat. . . . Description d'une Production extraordinaire formée sur la tête d'une Abeille. Paris, 1773.
Lüttichau, H. (German). Notes on the Improvement of Bee-keeping in Saxony. Dresden, 1773-1778.
N. (German). Three Treatises on Bees, their Forage, Plants, &c. Berne, 1775.
——— (German). Catechism of Bee-culture in the Duchies of Julch and Berg. Frankfort s. m. 1775.
——— (German). History of the Bee Society of Palatina. *s.l.* 1775.
Neidhardt, J. M. (German). Apicultural Rules. Leipsic, 1775.
Riem, J. (German). Improved and Proved Apiculculture. Manheim, 1771. The same work entitled The Fundamental Law of a Durable Apiculture. Berlin, 1775. 3rd edit. Manheim, 1795. 4th edit. (Riem and Werner, Leipsic, 1804. 5th edit. 1825.
———. (German). The Apicultural Societies of Changed Methods in Village Societies. Manheim, 1775.
Spitzner, J. E. (German). Practical Bee-keeping in Straw Hives. Leipsic, 1775.
Kortum, K. A. (German). Principles of Apiculture in Westphalia. Wesel, 1776.
Limburg, E. F. (German). Particulars for Bee-friends on the Origin of Robber Bees. Langensalsa, 1776.
Luttichau, H. V. (German). Nourishment for Bees in Sugar Syrup. Dresden.
N. (German). Explanation of Bee Pests in the Upper Rhine. *s.l.* 1776.
Steimmetz, J. F. (German). Explanation of the curious origin of various kinds of Bees. Breslau, 1776.
Thorkos, M. J. (German). True Origin of Beeswax. Oldenburgh, 1776.
Riem, J. (German). Short Manual for the Guidance of Apiarian Societies. Breslau, 1777
———. (German). Theoretical and Practical Bee-keeping. Breslau, 1777 and 1790.
Rendler, J. (German). The Most Useful Hive. Vienna, 1777.
Rudorfer, J. A. (German). Manual of Bee-keeping. Munich, 1777.
Spitzner, J. E. (German). Method of Preventing Bees from Stinging. Leipzic, 1777.
Riem, J. (German). The Correct Origin of Silesian Bee-keeping. Breslau, 1778.
Voigt, J. Ch. (German). Notes on the Natural Mode for Propagating Bees. Schwartzbach, 1778.
Hirsch, J. E. (German). Short Treatise on Apiculture. Ausbach, 1779.
Luttichau, H. V. (German). Appendix to Bee-keeping Knowledge in Saxony. Dresden, 1779.
N. (German). New Manual of Bee-keeping. Stendal, 1779.

(*To be continued.*)

Queries and Replies.

QUERY No. 218.—I have for some time used two stout Langstroth hives for extracting, the frames in the two stories being alike and both filled with comb. Having succeeded in getting all worker-comb in the lower story, I expected to have had no difficulty in getting the upper frames filled with honey, but I have been annoyed throughout the season by the queen's persisting in getting into the upper story and laying drone eggs. Do you think the perforated zinc would prevent this, without interfering with the storing of honey? Some of my hives have what we call *honey boards*, having $3\frac{1}{2}$ inches by 14 inch openings in each, to admit the bees to the upper story, and to remove these would leave too much space between the two sets of combs. I fear the zinc plates would be too expensive for use here.—W. P. T. *Ontario, Canada.*

REPLY TO QUERY No. 218.—Please to refer to p. 82 in last month's *Journal* for our experience of the zinc.

NOTICES TO CORRESPONDENTS & INQUIRERS.

G. K. (A Subscriber).—Yours is evidently a case wherein a 'fertile worker' has taken upon herself the duties of a queen. If you refer to indices of former volumes you will readily find the best means of treatment for the hive.

The British Bee Journal,

AND BEE-KEEPER'S ADVISER.

The BRITISH BEE JOURNAL is published monthly, and contains the best practical information for the time being, showing what to do, and when and how to do it.

Subscribers to the JOURNAL are first, second, and third class. First class are those who subscribe 10*s.* 6*d.* per annum, from any date, who are entitled to immediate replies, per post, to their queries, when a stamped directed envelope is sent. Second class are those who subscribe 6*s.* per annum, and whose queries can only be replied to through the columns of the JOURNAL; and Third are Clubs of Cottagers, each consisting of not less than six, to whom the charge will be 4*s.* 6*d.* each Member.

Subscriptions, Correspondence, and Inquiries to be addressed to

C. N. ABBOTT, Bee Master,

SCHOOL OF APICULTURE, FAIRLAWN, SOUTHALL, LONDON.

BERKSHIRE BEE-HIVE.

(SILVER MEDAL.)

It is universally acknowledged to be a most useful and interesting Hive, to which the highest testimonials are constantly being received. It combines the advantages of glass with the utility of wood, consisting of Store Box and Two Supers; each Super will hold 20 lbs. of honey, and by removing full ones and replacing them empty, unlimited room is given, and swarming prevented. Price 20*s.*

BERKSHIRE BEE-SHEDS,

'UNIQUE AND HANDSOME,' TO ORDER.

Sole Inventor and Maker,

J. SADLER, SONNING, nr. READING, BERKS.

BEE-HIVES.—PETTITT'S METAL RACK BAR-FRAME HIVES.—LIGURIAN BEES of the purest race. Imported QUEENS, SWARMS, and STOCKS. English Stocks or Swarms. See Illustrated Catalogue, post free, 3*d.* Please address W. J. PETTITT, Apicultural Institute, Dover. fo. 33.

HIVES.

THE IFIELD BEE HIVE, having Three Glass Windows, and Shutters to same; Abbott's Standard Bar Frames, Two Floor-boards—one remains in while the other is being cleaned—and has the advantage of double thickness, both draw out. Complete, with Roof, Floor-boards, Frames, &c., and painted, with Twelve Frames, price 30*s.*; with Eight or Ten Frames, less in proportion. Supers, 2*s.* 6*d.* extra. To be obtained of the Inventor, R. C. BLAKER, Ifield Vicarage, Crawley, Sussex. fo. 8.

RIMMELL'S SPRAY DIFFUSER.—For Spraying Combs. Can be used either with Syrup, Scents, or Disinfectants. Post free, 1*s.* 6*d.* Safely packed in a rocket case.

Office of *British Bee Journal*, Fairlawn, Southall.

IMPORTED LIGURIAN QUEENS.

ANYONE desiring Queens of ABBOTT BROS., must please order them at once, as, in consequence of the bad weather, there may be a difficulty in obtaining the supply.

ABBOTT BROS., Fairlawn, Southall, Middlesex.

A NEW BEE HIVE.

THE DIVISIONAL HIVE.—Price complete, on legs, with super and cover, 40*s.* See *B. B. Journal* for September. Made and sold only by the Inventor, S. SIMMINS, Crawley, Sussex. fo. 56.

SEVERAL HIVES of BEES for Sale in Woodbury Bar-frame Hives. J. TORRY, Fern Cottage, Lower Fant Road, Maidstone.

WANTED, back Numbers of the *Bee Journal* for 1873, '74, '75, '76, bound or unbound, in good condition. Address, stating price, to HY. H. BEAKBANE Warrington.

TWO FIRST PRIZES and CERTIFICATES.

ABBOTT'S ECCENTRIC EXTRACTOR, 'THE LITTLE WONDER,' has been exhibited at the West of England Apiarian Society's Show, at Weston-super-Mare, and at the Devon and Exeter Bee keepers' Association's Show at Exeter, and elsewhere, and on each occasion it was awarded the FIRST PRIZE AND CERTIFICATE, and was pronounced A MARVEL OF SIMPLICITY. For portability it is unexampled; the large size, to take frames 20 inches by 12, weighing only 8 lbs., and it is so simple in construction that it cannot get out of order. Price 15*s.* and 17*s.*, of the Inventor, C. N. ABBOTT, Editor of *British Bee Journal*, School of Apiculture, Fairlawn, Southall.

ABBOTT'S HONEY KNIVES.

Best Elastic Steel, 3*s.* each, 5*s.* 6*d.* per pair, post free of

GEO. NEIGHBOUR & SONS, 149 Regent Street,

or at the Office of the BRITISH BEE JOURNAL, School of Apiculture, Fairlawn, Southall.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also be fitted.

J. W. DEACON, Optician, High Street, Sydenham.

DR. PINE'S BEE-KEEPERS' LOTION.

This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

TESTIMONIAL.—'Your Bee Lotion has certainly a wonderful effect in allaying the pain and swelling resulting from Bee-Stings. I have applied it to many persons during the past season with the greatest success.'—OBED POOLE, Hon. Sec. West of England Apiarian Society, Uphill, Weston-super-Mare. Feb. 13th, 1877.

Price 1s. 6d. per Bottle, or Post-free for 1s. 8d.

AGENT—

MR. C. N. ABBOTT, Editor of *B. B. Journal*, Fairlawn, Southall.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 55. Vol. V.] NOVEMBER, 1877. [Published Monthly.]

Editorial, Notices, &c.

NOVEMBER.

November is a dull month in the bee-keeper's calendar, since all operations tending to the comfort and repose of the bees during the coming winter are supposed to have been performed, and the chief business of the time should be the cleansing of deserted hives, the packing away of clean, useful comb, and the preparation of new hives for the ensuing spring and summer campaign.

It is, of course, important that work, necessary at this season, but hitherto neglected, should be undertaken forthwith, that further evil arising from delay may be prevented. Hundreds of bee-keepers have not yet examined their stocks, and are consequently in ignorance of their condition, and the gardener's assurance that 'they *be* lively, sir,' has satisfied many when it ought to have filled him with alarm, for liveliness at this season often means brigandage, which means plundering until the *lively* stock is exterminated.

It is most unfortunate that bee-keepers, as a rule, cannot be induced to see the importance of preparing their bees for wintering before the winter comes. In many mundane affairs, it is rank folly to pretend to 'go over the bridge before you get to it,' because much misery is occasioned by painful anticipations of what may never occur, but in matters which repeat themselves annually, or oftener, it is positively stupid to allow them to come upon us and find us unprepared for the exigencies they create. Every bee-keeper knows that there will be in the spring, a time of swarming; soon after, a time for supering; again, a time for extracting; later on, supers will require to be removed; then comes the equalisation and preparation of stocks for the winter, involving examination, driving, transferring, uniting, and feeding, to say nothing of the necessities which in the meantime will promiscuously arise, the whole of which should be provided for beforehand, that there may be no delay in their execution. Who has not suffered during the past season through being unprepared with hives for his swarms, supers for his stocks, an extractor for relieving his over-charged combs, bee-traps, transferring-racks, feeding-bottles and stages, queen-cages, gloves, veils, and all the other etceteras that are required in a well-found apiary, when, by a little forethought and trouble, he might have prevented the vexation and inconvenience which arose therefrom?

Now is the time for clearing up the work due in an apiary, as far as it is practicable. There are some important things which it will be impossible to remedy, one of the chief being the scarcity of young bees in hives that have been neglected. It is a great idea with us, that the production of young bees in autumn is the best preparation for safe wintering; it originated with us, and was involved in the scheme of slow, stimulative feeding, to which we gave birth; and, although it has been ridiculed, it, like most important truths, is gaining ground, and is beginning to be thought a first necessity. Stimulative feeding to induce breeding is not now practicable; it is too late in the year, for if begun and continued, it would be perhaps a week before egg-laying commenced, it would be three weeks after before young bees appeared, if all went well; but if in the meantime cold weather set in, the production of brood would be abandoned, the larvæ consumed, and the bees would be really in worse condition through the useless labour they had performed.

One of the important matters that should not be neglected in an apiary, and for which there is yet time, is the melting up of odd pieces of old comb, to prevent them becoming the repositories of the eggs of of the wax-moth.

Melting up of Old Combs is easily performed, though not always satisfactory in its results. Very old combs contain very little wax, and much dross, so that though there may seem to be a large bulk, there is often very little profit from the boiling.

The plan is to squeeze the combs into the narrowest possible compass, and to do this more easily they should be warmed. They should then be placed in the wax-extractor, and proceeded with as per directions. But as probably most of our readers have not that

useful instrument, the compressed comb should be put into a canvas bag, which should be tied closely, and then put into a copper or boiler nearly full of boiling water, and when thoroughly hot, the bag should be pressed to the bottom of the vessel with an old crutch or worn-out hair broom, and should be there kneaded and pressed until the wax has forced itself out of the canvas, and floats on the top of the water. The fire should then be put out, and the bag of 'pudding' held to the bottom while the whole gets cold, or, while the molten wax is being skimmed off and thrown into cold water. If the whole is allowed to get cold, the wax will be found like a cake on the top of the water, and may be removed for further purification; but if it has been skimmed off and thrown into cold water it will be found to have parted with most of, if not all its impurities, but will be in small chips. In either case it will be well to heat it again in an inner vessel, as glue is heated in a glue-pot, and to pour it (through fine muslin, to separate all dirt from it) into the mould in which it is to cool for use or exhibition.

DYSENTERY.

This insidious disease is one which it will be much more easy to prevent than to cure; at the same time it is the most likely to occur during the winter months, to worry and perplex the bee-keeper, and cause loss in the apiary. It arises from the bees partaking of food that has become unwholesome through being for a long time unsealed in an ill-ventilated hive, a condition of things which is often caused by rapid artificial feeding late in the year. It may also be caused by the bees finding late supplies of thin watery honey when it is too late for them to evaporate the superfluous moisture from it, and it therefore remains open to the action of the vapours within the hive and becomes sour, or may become fermentive. If it could have been properly 'evaporated' it would have been sealed over, and like wine or beer when bottled and '*corked*,' it would have 'kept,' but being exposed, it, like either of those just named, will have undergone a chemical change, and become unfit for use by the bees. During fine weather little harm results from the bees partaking of such food, unsound though it be, but in cold weather, when they cannot leave their hive, it is highly dangerous. Bees, during winter, appear to be unable to discharge themselves, except when on the wing, and this would seem to be a wise provision to ensure cleanliness within the hive; and it will, therefore, be apparent that when they partake of food which does not agree with them, and they cannot, through stress of weather, take the necessary cleansing flight, they must be reduced to sad extremities. In such condition bees die within the hive, or crawl outside and fall down on the ground, and perish there; many, before or soon after death, burst from the effect of the fermentation which has been quickened through the heat of their bodies, after they have swallowed the food; and this state of things, filling the hive with a filthy odour, soon increases the virulence of the disease, and, should it not be quickly discovered, the stock will inevitably be ruined.

It is a singular fact, that stocks suffering from dysentery almost invariably begin to breed. The sentimental inference is, that seeing their dissolution approaching they provide to the best of their ability a new population to succeed them; but from our point of view the fact may be traced to a different, though not a healthy cause.

Dysentery attacks ill-ventilated hives, and produces undue excitement, which in turn causes the evolution of gases, which render their atmosphere still more unwholesome, and this, acting on the bees, induces increased activity, and causes increased consumption of food for heat-producing purposes; and this condition of things, abnormal though it be, most surely acts on the queen, and disposes her to ovipositing, and many of the cells become soon charged with eggs, which, the excitement continuing, forces, as it were, the bees to take up their nursing, a work unfitted for the time of year, and which adds to their chief difficulty and distress, for the endeavour to prepare the bee-pap,* from unwholesome materials, be it remembered, causes much distention of their abdomens, that they, instead of their numbers increasing, become victims and burst, and either within or just outside the hive.

In over-ventilated hives, the bees become too cold, and their vapours condensing on the combs, &c., render the coldness greater. Bees in this kind of airy domicile are compelled to consume enormous quantities of food for heat-producing purposes, and the weather continuing cold, they are unable to quit their hives for a flight, and they therefore perish for reasons above given. The worst evil likely to arise from the conditions above depicted hinges on the quality of the food prepared and administered to the larvæ in these abnormally excited stocks.

It will be evident that, as dysentery arises from the bees partaking of unwholesome food, which in turn produces increased unhealthiness in the atmosphere of the hive, the food

* Bee-pap is prepared within the bodies of the bees. They swallow and partially digest their food, and then discharge it from the mouth into the cell, for the nourishment of the embryo bee.—Ed.

will continue to degenerate, and become more unwholesome; and it will not require a great stretch of imagination to conceive that the bee-pap, formed of such food, will be poisonous, though partially digested by the bee-nurses. Under such conditions the recipients of the bee-pap die and putrefy in the cells, and the the bees being unable to remove the filth it ferments, and, according to our theory, sets up the laboratory from which presently emanate the germs of *foul brood*.

BEE PLANTS.

We have still the pretty white flowers of melilot clover, and sweet alyssum, which the bees visit on fine days. There is also a fair quantity of mignonette, a little laurustinus, and our old friend borage, with its lovely blue bells; but although they form a source of amusement for the bees, they yield very little honey. We are, however, preparing for the future, and hope to help our pets by providing them with early spring forage. We have about a hundred pollen-bearing palm willows, many hundreds of wallflower plants, ditto of the spreading *Arabis Alpinus*, several thousands of crocuses, and a large lot of the red flowering currants, many hundreds of gooseberry and currant-trees, and numerous horse-chestnuts, and with these and sundry trifles, aided by any quantity of artificial pollen, we hope to have our bees in swarming condition as early as they will be required. From our experience we find it useless to provide specialities when the fruit-trees and plants present their attractions, but we shall not forget to provide for the interval between them and the white clover and limes. For this purpose we believe rape and mustard are the most eligible, as after the bees have ransacked the flowers the yield of seed will well repay their growing, and (from our experience with goats) the haulm or straw will all be consumed.

ADULTERATION OF HONEY.

From an extract from a Scotch newspaper, (p. 122) it will be seen that imported 'Genuine American Honey' has been found to contain 57 per cent of starch glucose, and the vendor has been fined heavily for having it for sale. This is almost as rascally a business as was that in which wooden nutmegs figured some years since; but however clever it may be to foist a spurious article on the public in lieu of a genuine one, the game would soon be played out if English food-inspectors would test a few samples from the shops of some of our great honey-dealers. The stuff is generally to be found in fancy bottles, a slice of comb honey (?) being in the centre, surrounded with the mixture, the whole set off by an elegant label, the get-up of which overcomes the fear of the public, and they buy and swallow the pretty rubbish wholesale. We trust that every bee-keepers' association will, in the interests of its members, and with the aid of the local inspectors, so harry the vendors of the vile trash that they may be afraid to keep it in their shops, and thus stop its importation into this country, to the injury of its honey-producers and the swindling of the public.

TO MAKE BARLEY SUGAR.

QUERY.—Will you kindly inform me in your next number the best receipt for making barley-sugar for bee-food, as what I have made from the receipt given in Cheshire's *Practical Bee-keeping* is not what it should be, although the bees eat it fairly well. The barley-sugar is not clear; it is of a cloudy white, and sometimes it is not solid.—CAPTAIN R.N.

REPLY.—*To make Barley-sugar.*—The receipt was given on page 129 of vol. ii. (December, 1874), but, as the work has become scarce, we reprint it.

Break up three pounds of loaf sugar, place it in a saucepan or preserving pan, and pour half a pint of cold water upon it, and half a wine-glass full of vinegar—these are all the ingredients required. Prepare a fire in a grate, the top bar of which will let down in a similar way to that in an ordinary kitchen grate, taking care, however, that at the commencement of the operation the bar is up in its place, and the grate *full* to the top, with glowing cinders or wood embers, so that a great heat may be obtained without any flame.* Take the saucepan containing the sugar, &c., place it upon the fire, and stir it *without ceasing*. In a few minutes it will begin to assume the character of dirty broth, which will have anything but a nice appearance, but presently a thick scum will rise, and the mass will try to boil over. As soon as this is observed, the saucepan should be removed from the fire until the ingredients have cooled a little, when it should be set on the grate again in such a way that only a small part of it is over the fire: the boiling will then go on on the exposed side; and as the ebullition takes place, the scum will be forced to the side *not* over the fire, whence it may easily be removed with a spoon. Thus, the saucepan is held in the left hand, the spoon in the right, and the saucepan being on the left-hand side of the grate, with its right side exposed to the action of the fire, the scum will retreat to the left or cooler side, and will be in the handiest position for removal, as will be evident in a few minutes to any one trying it. After a quarter of an hour of this treatment, the mixture will have become in a great degree clarified, when it should be removed from the fire, while the top bar of the grate is let down so as to permit of its nearer approach to a greater heat. Should there be any irregularity of the fire it should now be corrected, but flame should be prevented, as the mixture having

* Those who have close kitcheners need only make up a strong fire during the process.

parted with its water will be liable to take fire if brought into contact with flame. It will be well here to remark that so long as the scum remained on the syrup, there was a tendency in the whole to boil over, since the water evolved in the form of steam while the boiling was going on, accumulating in a body, would lift the scum above the saucepan to enable it to escape; but when the scum was *gone*, the water would be evolved in bubbles of steam, which would *crackle*, but not boil over unless a very intense heat were applied. The duration of the boiling of the clarified syrup before it becomes liquid barley sugar will depend upon the amount of heat, and the consequent evolution of the water, to which it is subjected; but trials may from time to time be made by dropping a little on some cold surface to see if it becomes brittle, and when that state is arrived at it is done. Last year in giving directions, we suggested that the barley sugar should be poured into bottles and sticks inserted, but some correspondents complain of the difficulty of preventing it deliquescing under these circumstances, as the sticks will not permit of the insertion of corks, and consequently the barley sugar absorbs moisture from the atmosphere, and therefore it would perhaps be well to pour it into a tin dish, set it in a dry, cool place until it becomes hard, and then by striking the tin on its underside, the whole of the barley sugar will be splintered into fragments when it may be placed in bottles, and corked up for use as required.

There is little art required in this mode of manufacturing an article which is almost unpurchasable, since the barley sugar sold by confectioners is often of a nature, that when given to bees it becomes sugary and granular so as to be unfit for their use, and consequently they carry it largely from the hive, and it is wasted. The principal attention should be directed to the clearness of the fire, the skimming off of the scum, and the constant stirring of the syrup to prevent burning.

[It will only be necessary to move the saucepan to obtain the variation of heat required.—Ed.]

MR. C. O. PERRINE.

The *American Bee Journal*, in an editorial, says—

'A letter from C. O. Perrine, who is now "going the rounds" in Europe, informs us that he intends to visit Italy, Egypt, and Cyprus Island, and will bring good queens of several varieties with him. He called on friend Abbott, Editor of the *British Bee Journal*, and expects to see him again.'

In reference thereto we beg to say that memory reflects the pleasure we enjoyed in seeing Mr. Perrine, and making the acquaintance of so prominent an American bee-keeper. In the course of converse he gave us charming accounts of the 'big' ways and means of our brethren on the other side of the 'pond,' and inflated us with an idea that it would be pleasant to many gentlemen bee-keepers of England to meet our worthy American cousin, and enjoy a quiet conversazione.

Mr. Perrine had already proposed that we should invite a few prominent English bee-keepers to meet him at the Charing Cross Hotel in London on his return from his 'rounds' in Europe: but foreseeing the difficulties which might arise from shortness of notice of his return, we, with masonic love and respect for our American brethren, undertook to provide a festive 'at-home' on the occasion, where Mr. Perrine should be the honoured guest.

Mr. Perrine wrote from Paris to say that he would be at the Euston Hotel on a named date, and would meet us a day or two afterwards in London. We wrote to him at the Euston Hotel, reminding him of the arrangement already mentioned, and informing him that our English friends, of whom nearly fifty had been invited, would be prepared to receive him at 'Fairlawn' with due honour and respect; and that is all we know of Mr. Perrine, for he left our shores without acknowledgment or farewell. We are, however, assured that he did not visit Egypt or Cyprus Island, and that his 'variety' of queens was obtained from Sartori, of Milan.—Ed. *B. B. J.*

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris. Berger, Levrault & Co. 1875.

The natural History of Bees may be divided into five parts:—1st, their description; 2nd, their functions and habits; 3rd, their constructions or cells; 4th, the produce of their toil (wax and honey); 5th, their propagation by breeding and swarms.

Description.—A hive contains three sorts of bees, viz., the queen or mother-bee,* who, except at the moment of swarming, is the only one of her kind in the hive (1); the drones, or males; and the ordinary or working-bees, which constitute the bulk of the population of the hive.

The working-bee of the ordinary species is brown in colour, and has its body covered with a sort of down of very fine hairs. It is furnished by nature with teeth (2), three pairs of legs, and a trunk or tongue, with which to carry on its work. The teeth consist of two little cutting scales (3), which work horizontally, not vertically like those of a man or animal, and are used to collect the grains of pollen from the flowers. The office of the first pair of legs, which act as hands, is to seize the grains of pollen from the teeth, and to transmit them to the second pair, by which they are packed with repeated little taps or blows in the pockets with which the hinder pair of legs are furnished, the whole operation being performed with admirable celerity (4). The trunk is a sort of elongated tongue, covered with hairs like the rest of the body, and is used to collect the honey from the flowers and to pass it through the mouth and throat into the stomach, which

* The name of mother-bee is much more correct than that of queen, but to avoid the appearance of pedantry the latter will generally be used in this notice.

Editorial Notes.

(1.) This is practically correct, but sometimes duality of queens *is* permitted, although one of such twain will generally be found to be useless.

(2.) The working bee has no teeth, but is furnished with mandibles (or jaws).

(3.) The so-called cutting scales may be found in the wasp, but not in the domestic bee, save in the queen, its mandibles terminate in two small pads, which work together like the forefinger and thumb of a human hand. Bees do not *bite* in the proper sense of the word, although they can lay hold of and tear anything soft or fibrous.

(4.) The grains of pollen are collected by the tongue, which, when moistened, the bees roll about amongst the anthers of flowers, or amongst the meal offered as a sub-

acts as a temporary reservoir till it is stored in the cells. This act is performed by licking, not by suction, and though the bee can extend and draw up its trunk at pleasure, it does not use it as a pump (5).

The queen, or mother-bee, is slightly longer and bigger in every way than the common bee, of a deeper reddish-brown above, and slightly more yellow in colour below its body (6). Her teeth or jaws are shorter, and the trunk is more slender, while the belly is longer and more pointed, and the legs, which are longer also, have neither brushes nor pockets. The wings of the queen are very small (7) and end at the fourth ring of the body. The sting of the queen is stronger and more bent than that of the ordinary bee, but she never uses it except to kill her rivals, the other queens. Finally, she is easily distinguished from the common bee by her superior size, and especially by her greater length.

The male, or drone, is much larger than the ordinary working-bee, but is not so long as the queen. The head is round; the body is flattened and blackish; the teeth (8) and trunk much shorter; the legs are without pockets, and he has no sting. The noise which the drone makes in flying has given him the name which he bears.

The ordinary bee measures across the corselet four French millimètres, equal to ·158 of an inch English, or rather less than one-sixth of an inch. The queen measures four millimètres and a half (French) across the corselet, equal to ·177 of an English inch, or rather more than one-sixth of an inch. The drone measures five millimètres and a half (French), or ·237 of an English inch, equal to nearly a quarter of an inch across. The measurement of the common bee, as given above, is exact; that of the queen and drone rather greater than less than the mean. The above measurements have been obtained by causing the bees to pass through graduated holes of different sizes, made in a plate of zinc.

In using plates of perforated zinc for experiments, or to confine queens and drones while free passage is given to the working bees, oblong and not square or round holes should invariably be employed, as the latter prevent the bees passing with their loads of pollen, (9) which are not interfered with by oblong holes. Holes one-sixth of an inch high by half an inch broad will allow all ordinary bees to pass with their loads of pollen, but will exclude queens and drones; while holes of the same width, but with a depth of one-fifth of an inch, will allow the queens to pass and will exclude only the drones. These perforated zinc adapters are indispensable for experiments, and, indeed, for bee management in general.

The yellow or Alpine bee is distinguished from the common bee by two (10) yellow bands which encircle it. The first covers the whole surface of the upper ring of the abdomen; the second, which is separated from the first by a narrow black line, covers only a portion of the breadth of the second ring. In a young Alpine the two rings or bands are of a colour something between that of brass and copper; but as time goes on, the colour deepens, and gradually becomes that of copper. A lens will show that the hairs on a young Alpine are of a deeper yellow than those on the common bee.

The Alpine bee is slightly larger than the common bee. Its cell measures $\frac{3}{10}$ths of a millimètre (·011 of an inch) more than that of the common bee in breadth. It has a lighter flight, and it buzzes with a softer buzzing. But the Alpine is of a more decided character, and is full of enterprise; it is more vigilant, and it defends its hives and young brood more effectually than the other against all enemies of the hive, both within and without, especially against the wax-moth (*Tinea galleria cerella*). More active than the common bee, it is at work earlier in the morning, and returns the last to its hive at night; its sense of smell is more subtle, for if in a moment of imprudence you leave about exposed near the hives the nourishment intended for some necessitous colony, it is the Alpine that always is the first to take part in the pillage.

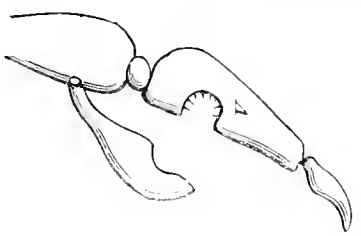
The principal reproach that you can bring against the yellow bee is a lack of honesty and of all feelings of reciprocity. He will easily introduce himself into a colony of black bees, and live and work with them. But, though he expects other bees to open their doors to him, he will never show a like hospitality to others. You will never see a black bee allowed to introduce himself into a family of yellow ones, though it is the commonest thing in the world to see yellow bees living in common with black ones. The yellow bee swarms more readily and amasses more honey than the black bee, but there is some reason to suspect that the latter quality comes from his greater aptitude for plunder rather than from harder work (11).

It is always difficult to keep the yellow race pure, though the half-breeds seem to possess the same characteristics as the pure race. It is certain that a yellow mother can produce ordinary black workers and bees of its own race in equal numbers, and this is no doubt because she has been fertilised by a drone of the other species. It is also pretty certain that an Alpine queen has a preference for a drone of the other species; as a result, half-bred bees are produced, which in turn produce only pure black bees, so that in the third generation the yellow race generally disappears from the hive (12).

As regards the powers of sense possessed by bees, it may be said that it is presumable that inside the hive, where work goes on by night as well as by day, the bees are guided by the senses of smell and of touch, and not by sight. During the night bees seem to fly at random, which seems to show that they do not see in the dark. The sense of touch appears to be principally placed in

---

stitute for pollen. On page 224 of Vol. III. of *British Bee Journal* will be found an illustration of a bee's foreleg, thus—



where is also an account of the supposed use of the part marked A, viz. as a means of clearing and brushing the antennæ, but it appears equally suitable as a means of clearing the pollen dust from the tongue.

(5.) This is almost a distinction without a difference. We should be inclined to describe the passing of the honey into the honey-sac of the bee, as a process of capillary attraction.

(6.) Queen-bees are furnished (like the wasp) with cutting mandibles, and when holding them between the lips, to prevent injury to them while using our hands, we have many times been bitten, and in some cases painfully so.

(7.) The wings of a queen are only small *in proportion* to her size.

(8.) Drones have no teeth.

(9.) This is not correct in every instance, as we have had sections of supers spoiled by bees getting their pollen through the round holes and depositing it in the cells amongst the honey.

(10.) The pure Alpine bee has three yellow bands on its abdomen, although the nearest to the thorax is not readily observed until the bee is telescopically extended.

(11.) There is more in this paragraph than is usually observed. Ligurians, as a rule, are permitted to pass in and out of black colonies unchallenged, but whether for the purpose of *working with*, or of *robbing* them, we cannot at present decide.

(12.) This is not the fact, as a degenerating stock of Ligurians will show traces of Alpine blood for many generations.

the antennæ. When two bees meet they invariably extend their little horns to feel each other, and this sense appears extremely delicate. The power of touch, moreover, is not affected by the removal of one antenna only, but if a bee should lose both, it becomes at once incapable of continuing its work, and it leaves the hive, not to enter it again.

The sense of hearing seems to be sufficiently acute in bees. We know that they beat the assembly with their wings (13) as an ordinary signal of recall. Place a hive in a dark room, and immediately the bees commence to buzz, in order to recall the wanderers. Move the hive about, or cover it over, yet the wanderers will always direct their flight to the point from whence the noise comes.

The sense of smell is exceedingly delicate. Bees, on coming out of the hive, at once direct their flight to the spot where the best harvest is to be gathered, even though it be distant more than a mile from the hives.

Functions or Habits of the Working or ordinary Bees.—The ordinary bees build the cells, collect the honey, nurse and fed the young, guard the hive, and attend to its sanitation; in fact, execute all that is necessary for the preservation and life of the family. These works are all done with the most admirable organization, and it might be supposed that all was executed by special order. But, assuredly, the bees receive no order whatever from their queen, as when the queen has gone away with a swarm, and there is left in the hive no queen, except in the form either of grub or chrysalis, the work goes on with the same order and regularity as when she was present. In fact, the bees form a republic, and the body of workers are without doubt a self-governing body and furnish their own police.

Nevertheless, it is undoubtedly true that bees that are temporarily without a queen build very little, or, more often, build only drone-cells, the cells which daily become vacant by the birth of young bees being generally sufficient for the storage of pollen and honey. Moreover, if you remove a strong hive from its board, and replace it by a hive that is temporarily without its queen, the latter will readily accept into the family the bees which return from foraging in the fields and which belong to the former.

As regards the employments of bees, Baron Berlepsch is of opinion that the young bees are generally employed inside the hive, while the older and stronger ones go out to gather honey in the fields, though both may, when necessity requires it, work at home. He thinks that the common bee begins to fly outside the hive on the eighth day of its life, but that it is not strong enough to go away to forage for honey till it is at least sixteen days old. The latter assertion, however, seems somewhat hazardous.

The bee has been created to form one of a great family. All its instincts and habits are of essentially a sociable nature, and adapted to that condition. The most perfect understanding, the most perfect harmony of operation, reigns among the vast population of a hive, so that the product of the labour of each individual bee becomes the common property of all. But no hive will spontaneously mingle with another hive; and hence that strong national spirit,—that spirit of autonomy which often leads to such desperate combats between the bees of different hives. The very existence of the hive depends on that of the queen, who is also the mother of the family: hence the despair and abandonment which overtake the bees in a hive if she be lost, and the perfect calm and tranquillity which reign there if she be found again or replaced even by a young queen not yet arrived at maturity.

(13.) This is doubted by some of our minute observers, but to our mind the evidences are in favour of their ability to hear the language they understand. Great noises appear to have no effect upon them.

The bee is aggressive only when it believes its property attacked or its home in danger: it seems never to be so when away from the hive on foraging excursions. As a proof of this, place a piece of comb with honey in it at some distance from your hives when the bees are out foraging, and it will immediately be covered with bees, eagerly disputing among themselves for the sweet booty it contains; but you may take up that piece of comb, covered as it is with angry and excited bees, but unless you clumsily pinch one of them, you may rely on it that not one of them will sting you.

Huber and some other authors are of opinion that there are several classes of bees in a hive, all of which are not employed in the same way or on the same work; and that some are of smaller size for work at home, looking after the young brood, while others are larger and go out foraging and build the cells. But this supposition would entail the necessity of having different-sized cells for breeding the different sizes of bees supposed to exist, which is not the case. It is possible, however, that there may be some slight difference in the size of bees, owing to some of them being hatched in old cells, which are lined with the pellicles left behind by previous occupants who have been hatched in them.

(*To be continued.*)

'A WONDERFUL DISCOVERY.' (?)

The following interesting experiments made with bees, by Herr Dönhoff, are recorded in the *Archiv für Anatomie und Physiologie*. He took some bees from the hive, just as they came out of the entrance-hole, and placed them under a glass bell at a temperature of 19° C. (66° F.) First they ran hastily up and down the sides of the glass, and flew about in the jar. Later on their movements became less hasty, and after 45 minutes they all sat quietly together, moved slowly and clumsily. They were no longer able to fly about. He let a few crawl upon a pencil, and by giving it a jerk, threw them into the air; they fell down perpendicularly without giving a humming sound, *i. e.*, without moving their wings. He killed and opened one or two and found their honey-bags empty. To the others he then gave a solution of sugar, and after they had fed for about $3\frac{1}{2}$ or 4 minutes he again threw some into the air. They no longer fell down perpendicularly, but a little further off, and also moved their wings. A minute afterwards they did not fall down at all, but flew to the window; they had become the same lively insects as before. If the temperature is under 19° C. they lose the power of flying even sooner, and a longer period elapses before it returns after they are fed on sugar-water. In higher temperatures the power returns sooner. Herr Dönhoff thinks it probable 'that the bee loses the power of flying because it does not possess the necessary strength to be converted into muscular action, and that this strength returns to its system because in sugar it finds the necessary vital support.'—*Nature.*

[We have heard before that food gives strength.—Ed.]

A HINT FOR STINGING BEE-KEEPERS.

Would that man, like the bee, having once used his sting, could lose the power to inflict further pain; and did the effect of anger recoil on man as quickly as upon the bee, how supreme would be its exhibition in great minds, and what a blessing it would be to the nation in respect of little ones.—Ed. *B. B. J.*

Sydenham and Forest Hill Institute.—On Tuesday evening, 23rd Oct. 1877, Mr. R. D. Etheridge gave an interesting lecture on 'bees' to the members of the above institute. The chair was taken by G. Andrews, Esq.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A NEW DANGER TO THE BEE.

A new danger was observed by me a few days back besetting the poor honey-bee in his daily endeavour to obtain a few drops of honey at this season of the year, and which results in the death of many hundreds of these industrious insects.

I allude to the new plant, *Tritôma Uvaria Grandiflora*, or, as it is vulgarly called, 'the Red-hot Poker.'

These gaudy flowers contain honey at the foot of the umbellate section of the flower hanging round the stalk, and thereby attract the bees, and they creep into the flower as far as they can; but woe to the poor bee who goes in too far. The flower is just wide enough to allow him to push his body forward to reach the honey; but alas! when he has reached it, he finds he cannot return, the end of the flower has closed upon him almost like a spring, and his body fitting so tightly, no doubt creates a vacuum at the upper end of the flower, and he is thus drawn, as it were, further in with every effort he makes to get out. I counted on one head of the poker as many as twenty-two poor bees thus enclosed and starved to death.

I send you a few specimens I have picked off, to show you (if they do not get crushed in the post) how nicely the unfortunate bees are enclosed in this living tomb; if they do get crushed in the post, you can visit this flower either in your own or some neighbour's garden, and satisfy yourself of the destructive habit of the plant, which may be added to Mr. Darwin's list—not of fly-catching, but of bee-catching plants.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

[The specimens arrived safely, and are as described, but we have failed in endeavouring to find similar instances hereabouts.—Ed.]

BEE ANÆSTHETICS.

Will Mr. Miller be good enough to say if any thumping on the top of skeps is necessary to dislodge the bees when chloroform is administered as he directs on page 105 of *Journal?*

Has nitrous oxide gas ever been tried on bees?—J. W. Eldridge, *Earlham Road, Norwich, October* 18, 1877.

EXPERIENCES WITH THE $\frac{5}{24}$ PERFORATED ZINC.

Referring to the August No. of the *Journal*, page 75, mention is made of a queen getting through the zinc into a glass super. Perhaps I ought to mention that the conditions were, as I may say, more favourable, or the peculiar situation in which the queen was placed would induce her to try and get through more than if the zinc were on top of a stock-hive. I will just explain the method I adopted, with fair success, though not thoroughly, because the queen got through the zinc.

In the first place, I had put on the glass on a strong stock, and they had three parts filled it with honey, so just when we had some honey about, I made a shallow hive, or a substitute for one about 16 inches long, 13 inches wide, and only 2 inches deep, and put bars into it, and zinc on top (this was intended to make the bees carry all their honey into supers); I then removed the stock, uncovered the top of hive, shook all the bees off the combs, made then run into the shallow hive, and covered the top with supers. In shaking off the bees I saw the queen, who appeared so large that I thought she could not get through again, as she did last year. Well, she got into the glass and laid eggs in the centre of it, the bees in the meantime working a lot of honey in the bottom, or stock-hive, as I intended it to be. When I took the glass off, I found her majesty there, and put her in at the front of the hive, and set the glass on again till it was completed. I had one box of sectional supers spoiled through her getting through again; and to my surprise, when I took the bees out of the supers, and the so-called shallow stock-hive, I found it nearly full of honey all sealed up, and, after taking these supers and hive away from them, I gave the bees some other combs. It is quite probable that she would not have tried to get through if she had had more room for breeding, &c., but that was not my object; I wanted to get all the honey I could while it was about, and if I could have kept her below, they would have worked more honey in supers instead of storing it below.

In another case I had the queen get through the zinc. I had put a very large swarm of nearly 10lbs. weight out of a 20 frame-hive into a 14½ square hive, but only 4½ deep; the bees could not well get in, so I put on zinc, and 3 square supers, 3 deep, one on top of another, which the bees soon filled; and when I took the top one off I had a nice super, but the two next the queen had been up in, and the combs were full of brood. Another experiment; about a month ago, I took a queen—a natural-bred one—out of a hive, and kept her away from her bees five or ten minutes till she had got quite fidgety; I had her in a small cage, and put some zinc over her, and she managed to get through; but it was quite an effort. I put her back two or three times, and she was two or three minutes getting through once; she twisted herself round till she did get through. I put her in again, and went to look after something else, and forgot her; when I went to look she had got through again and was gone, so I lost her.

Now for the other side of the question. I have had a lot of hives with the zinc on, some with supers on top, and some with drone combs, and some that I had put brood combs on top, but not in one of these cases did I have the queen get through. I think 'W. P. T., Ontario, Canada,' need not fear about the queen get-

ting through. As a rule the price of zinc is about sixpence per foot superficial. Mine were extreme cases—experiments, in fact—to get the honey all worked into supers. I have an old bee-keeping friend who has kept bees seventy years, who always works a swarm or two in a shallow hive about 4 inches deep, and who says he generally gets super-honey enough to more than pay the worth of the swarm. He gets the queen up above some times, but he only has a round hole, or slits, so that she has no difficulty in getting up, but the old man says that it pays him, though he may have a little trouble that way.

I have about forty stocks in bar-frame hives, and I hope to get them safely through the winter. There is another thing I must mention. Has anyone noticed that the bees at this time of year, and through the winter, are good weather guides? For when they come out for a fly very much, we are almost always sure to have a lot of wet or rough weather afterwards. This has been noticed for many years by—A Warwickshire Bee-keeper, *Weston, Leamington, Oct.* 26, 1877.

P.S. It is a shame they cannot settle accounts from the Shows before this time.—A. W. B.

[What accounts? and what Shows are alluded to? It is scarcely fair to the managers of Shows, as a body, that so sweeping a charge should be made. But perhaps it may be wholesome for the dilatory.—Ed.]

BEE-FOOD THAT WILL NOT CANDY.

Now being the busy feeding-time, and as I have, owing to the great want of honey in any hives, my share of attention to the busy workers, I venture to lay before the readers of 'ours' an improved method of making bee-food that will *not* candy; and I hope this will reach you in time for insertion in the next issue. My method, in which I have not failed once in making five lots of six pounds in each, is as follows :—

Into an iron saucepan, quite clean and free from grease, I put one quart of the town's water (soft), and placing it over a moderate fire, or gas stove, I let it remain until it boils, when I put in six pounds of lump sugar, the hot water making the sugar dissolve quicker. When this boils I let it remain simmering for three or four minutes—five at the outside—when I put into it slowly about one-third of a half-pint of vinegar, and let that boil up, when into this I pour slowly half of a half-pint of cold water; and when that boils, I pour the whole into a large jug, which just holds it, by which means I can tell if I have my correct quantity; and I then take off what little scum floats on the top, which is very little. When this food is cold, it has a very clear and bright colour, more of a pale amber. Now when cold, take off the slight skin that will be formed, and the whole of the rest of the food will be fit for use, without the slightest waste by any crystallising about the bottom of the jug. I hope many of the readers of ours will at once try the above receipt; and if they are as successful as I have been, I shall be amply repaid, and shall be glad I have made it known to bee-keepers in general.—John H. Howard, *Manor House, Bark Road, Exeter, Sept.* 27, 1877.

HONESTY IN EXHIBITORS.

Allow me to suggest what seems to me a partial solution of the 'Hon. Sec.'s' difficulty of the 'honesty of exhibitors.'

The various Apicultural Associations should rule that from every super exhibited at Society Shows, a certain portion, not enough to mar its beauty, shall be removed and submitted to the ordinary tests for purity. In the event of the super's being syrup-made, it would be disqualified. If it proved pure honey, the committee should give the exhibitor a certificate, accurately describing the shape, make, size, and weight of the super, and stating its contents to be perfectly pure.

This treatment would be no detriment to the super, nor would it prevent its doing duty at the round of shows, if required, as other classes of exhibits are so often made to do.

There should, of course, be a perfect understanding that every Association should accept the certificate of each.

I am equally at a loss with the 'Hon Sec.,' as to a means of preventing the exhibition of last year's honey as the produce of this. As far as can be seen at present, this must be a matter of conscience with exhibitors.—Arthur S. B. Miller, *Apiarian, Cambridge.*

ADULTERATED HONEY.

Enclosed you have what is much wanted to stop the sale of this spurious Yankee stuff. I hope it will have the desired effect, and I hasten to write to you at once, in case you may wish to reprint it.—R. J. Bennett, *Glasgow.*

Adulterated Honey.—At the Central Police-court, to-day—before Mr. Gemmel, Stipendiary—Malcolm Campbell, grocer, 89 George Street, was charged, under the Adulteration Act, 1875, section 6, with having, on the 22nd August, sold to Alexander Johnston Walker, Food Inspector of the Sanitary Department, three jars of honey which were not of the nature, substance, and quality demanded. Campbell pleaded not guilty, and evidence was led, Mr. Walker stating that on the day in question he saw in the window of defender's shop a ticket setting forth that pure comb honey was sold in jars. He entered the shop and bought three of the jars, paying 9½*d.* each for them. Campbell was then told that they would be analysed, and Walker offered to leave a portion of it with him. Campbell declined to receive it, and Walker sealed up the sample, which was sent to Dr. Clarke for analysis. Dr. Clarke stated that he had analysed the sample, and found it contained 57 per cent of glucose, a preparation from starch. Campbell said in defence that the honey was sent to him warranted to be genuine American honey, and he believed it to be so. The Stipendiary, however, found the charge proven, and imposed a penalty of 2*l.* with the alternative of seven days' imprisonment.—*Evening Citizen*, Sept. 27.

CONDEMNED BEES.

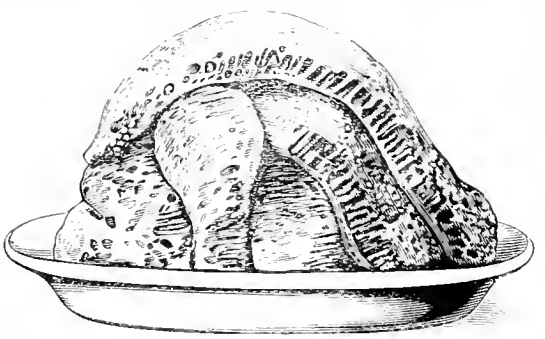
I do not think bee-keepers are aware of the value of the above, or they would make more use of them than is generally done. By a little care and management they can be made valuable stocks of, at a trifling expense, as the following experience of mine will prove. In September, 1876, I had the bees of a

straw skep, which had been destined for the sulphur-pit, given me by a bee-keeper of the old school, providing I took them without damaging the honey-comb. Having driven the bees into an empty skep, I brought them from Stoke, in Buckinghamshire, to Ealing. Next morning I put them into a hive of the Improved Cottage Woodbury pattern, giving them five empty combs. I fed them with syrup through one or two holes, which induced them to breed till late in November. This spring I took a swarm from them artificially, and during the summer the swarm and stock stored about ten pounds of honey each, which, with seven or eight pounds of syrup, which I divided between the two lots, are left for their use through the winter.

Taking the season into consideration, I consider they have not done badly, which has encouraged me to procure two more lots this autumn from the same quarter, and they appear at present very healthy; so I think I have reason to conclude that they are better off now in their comfortable quarters than they would have been had they been submitted to the fumes of sulphur.—A. W. Speechley, *Denmark Villas, Ealing.*

CURIOUSLY BUILT COMBS.

I enclose you herewith a sketch of some honey-comb just as it was taken from a straw super this year. It was kindly sent to me by the Rev. F. B.



Portman, of Staple Fitzpaine, near Taunton, a gentleman who is taking a warm interest in spreading a better system of bee-keeping among cottagers.

The formation of the top piece of comb is so curious, and it is so unusual to find bees building horizontal comb at the top, that it may be thought worth a place in your *Journal*.

The season about here has been almost a failure, and the winter will, I fear, prove a very disastrous one for those who have neglected to feed; already I have heard of numbers of stocks perishing.

My own stocks a month ago were extremely light; but having fed early, I think they are now in condition to winter fairly well. I have thus far lost one stock only out of seventeen. — Charles Lewis, *Taunton.*

CARNIOLA BEES.

The *Country Gentleman's Magazine*, September, contains the following interesting notice :—

'The well-earned reputation of Carniola bees has obtained recognition in America, a swarm having been sent out this spring by Herr von Langer, of Poganitz, near Rudolphswerth, to a gentleman residing at Rochester, U.S.A. The bees were despatched on April the 17th, and arrived safely at their destination on the 13th of the following month. The freight and carriage proved rather a heavy item in the outlay, amounting to nearly 15 dollars; but the purchaser writes over that he would not part with his bargain for twice the money. He was able to liberate the bees on the very day of their arrival.'

Carniola is the province of Krain, S. Illyria, in the Austrian Empire.

Before reading the above extract, I had never heard of Carniola bees, and I will be greatly obliged to you, or any of your correspondents, for an account of the peculiar merits which have gained their well-earned reputation.

Carniola is said to produce abundance of honey and bees' wax.—Arthur S. B. Miller, *Apiarian, Cambridge.*

THE EDINBURGH SHOW.

The spiteful tone and unfraternal spirit displayed in 'J. S. Arbroath's' letter, which appeared in last month's *British Bee Journal*, surely cannot in any way further the apicultural cause. Writers who indulge in such effusions generally find they recoil, and afterwards feel ashamed of themselves.

The East of Scotland Bee-keepers' Society, through a little jealousy in their not being consulted in the compilation of the Edinburgh Prize Schedule, after it was printed declined, through their secretary, to take a part, and aid their elder sister, the Caledonian Apiarian and Entomological Society, in carrying out the editorial advice of combining to make the above exhibition a truly national one. Had it been otherwise your correspondent 'J. S.' would very probably have been saved the trouble of writing the amusing description of our show which appeared last month, and airing his lack of logical acumen in applauding the report published in the August No. which altogether omitted the faintest allusion to the manipulations, the most generally interesting part of the exhibition; indeed, without which 'J. S.' tells us it was not worth seeing; as well as his ignorance of entomology, in supposing the members of the Caledonian weak enough to expose their valuable specimens in a canvas-covered tent on the Meadows during all the humidity we were subjected to in the end of July. It so happens that a few of our members possess classified cabinets sufficient to clothe the Edinburgh tent from top to bottom many times over.

Our own, as well as every Apiarian Society who attempted an exhibition in the by-past barren honey season, were under the deepest obligation to all hive-manufacturers, far and near, who lent their invaluable assistance to help in making up a show; and surely these gentlemen, having a pecuniary interest, are the better judges of what to cater for the apicultural taste.

Were the members of our Society desirous to emulate those of another in visiting a sister exhibition on a fault-finding tour, they might have something to say on the eastern wisdom displayed in admitting an observatory-hive, polluted with foul brood, let alone awarding it an equal prize with

three free from the bee plague, and other matters, better meantime kept in abeyance.

The cremation of Bonner, 'the glass to every mother's son of them,' 'Glasgae,' and the good taste of all the rest of the 'wind-bag description,' requires no comment ; it speaks for itself.—R. J. B., *Glasgow.*

[We trust, in the interest of 'the apicultural cause,' that our friends will think sufficient has been said on this subject.—Ed.]

BEE-KEEPING IN SWEDEN.

I have received your favourable letter informing me about your ultimately sending the ordered hive and other goods, but up to this very day I have got no information of my friend having received them. My intention was immediately to make some copies for transferring several colonies from skeps to this kind of hive; but I failed, so I don't know how I will succeed because it is impossible for me to know if my bees are young or old, it being very difficult in skeps to examine them. Still I have noticed and observed in the end or middle of August last the bees throw out young brood; and the season since that time having not been favourable at all, I do not suppose the queen has again laid eggs. Under such circumstances do you think they will pass the winter?

Being at a loss for a hive of yours, I ordered from Copenhagen one of Mr. J. Nielsen's prize hives, but when it arrived it was so very badly made and unpractical in all respects, that I was quite determined not to use it at all. Consequently I have been very unfortunate. This season has been a very bad one respecting bees. In some places the stocks have cast off plenty of swarms, but it has not been so generally. There have been few favourable days, consequently no harvest, not even sufficient for keeping up their living only; so, of course, the bees have already starved and died in masses, and I have bought several swarms at a price of *6d.*, *1s.*, *2s.*, and *3s.* each. I have fed them with sugar syrup, as directed in your *Journal* (a very good one, indeed, and the most practical generally I have ever read), but when examining them some few days ago, found some of the swarms have not sealed the syrup-cells. Do you think it will turn out dangerous? Really I am afraid. In skeps it is impossible to feed continuously and slow. I can't keep the food sufficiently warm, therefore I give them barley sugar in quantities as large as they can take it; still there is the fear that there will be no room for the queen to deposit her eggs, either this autumn or next spring early. For this season a month ago the queens discontinued their egg-laying, fourteen days ago I examined every skep, and found neither brood nor egg.

In one of the numbers of the *Journal* it is told of a new way of feeding—filling up to bar-frames with barley-sugar, and hang it in the hive. I should be very cautious in imitating it, being afraid two such combs will make a very cold place for the bees in the winter. Please give me your opinion on all my questions, at latest in your next number of the *British Bee Journal*, because I am very anxious to be informed properly for the benefit of my bees.—Hjalmar Stathammar, *Dunnas, Oct.* 10, 1877.

We much regret the miscarriage of our Standard Hive, particularly as it has prevented our Swedish friend from attempting the reforms in Swedish bee-culture which he had determined on.

[We may mention, *en passant*, that our esteemed correspondent is the gentleman whom Mr. Pettigrew described in the *Journal of Horticulture*, a short time since, as having adopted the Pettigrew hive. It will, however, be evident that, instead of being converted to the principles advocated by that gentleman, his aversion to skeps has so greatly increased, that he has determined to adopt the bar-frame principle, and has honoured us by introducing our hive, the Standard, to Sweden.]

The young brood thrown out in August show evidence that the stocks had received a check antecedent to that date, and from the fact of the weather having been unfavourable since then, the chances are against the stocks being in the best condition for wintering; and at so late a period it will be better to unite weak stocks, than to give them the increased labour of fixing their transferred combs into frame hives; since such work is very exhaustive, and there is little probability of the hive being re-invigorated by the late breeding of young bees.

Young bees, *i.e.*, bees that have not been exhausted by labour, are indispensable in a hive in autumn if they are to pass the winter well, and when there is no assurance of their presence, and no opportunity of providing or obtaining them, the wisest course is to take care that those existing shall suffer as little disturbance as possible, for, in bee-life, activity is labour, and every movement helps to wear away the bee's vitality.

The honey or syrup stored for winter use ought to be sealed over, or there is danger of dysentery ensuing through the food souring—much of this, however, may be prevented by careful ventilation.

It is not an easy task to ascertain the presence of eggs, or unsealed brood in a skep, unless the combs are stored therewith to the bottom, and that condition of things is highly improbable at this time of the year. Mr. Pettigrew, however, professes to be able to see them, even though the combs be crowded with bees; but *we* have never been able to do so without a reflecting medium—we would as soon undertake to see into the bottom of an ordinary tobacco-pipe while holding the stem to our lips.

The plan of filling bar-frames with barley-sugar for winter supply is an old idea which has again cropped up simultaneously in America and England. It would be all right if the barley-sugar would remain intact until the bees require it; but such is not the case, for the slightest humidity causes it to deliquesce and become liquid; and in weather both cold and damp it will liquefy too rapidly, and, running over the floor-board, will lead to robbery and ruin.

We trust that, ere this, 'the Standard' has arrived, and that many copies of it will be made and used in Sweden for the benefit of Swedish apiculture.—Ed.

BEE-KEEPING IN FIFESHIRE.

I suppose, after the season of 1877 has passed with all its troubles to bee-keepers, it will not be out of place to give you a short account of bee-keeping in Fifeshire. My apiary in spring consisted of ten hives, which were all in good condition, thanks to your advice in the *Journal* for early spring feeding, and those intended for swarming came forward earlier than I have seen them do in better seasons. I got my first swarm on 18th June, the others about the 25th; but had the swarms been left to shift for themselves they would have been all dead by this time. I gave them 1½lbs. of syrup weekly, always expecting the weather to alter. But alas! it only got fine after bee-pasturage was gone.

We had only about eight days during which any honey could be obtained, viz., from the 7th to 15th of June, while the plane-trees were in flower. Clover was a blank, both in pollen and honey; the limes were spoilt with rain. My experience with supers was anything but bright; it was only those hives that had not been able to consume their old honey that put anything into supers, although I had hives fully stronger in bees, that took possession of their supers earlier than the ones that half filled theirs. This caused me to conclude that the bees had shifted the honey from the stock-hive and put it into the supers. After visiting some of the bee-shows, and having seen the supers, which were said to be gathered in the natural way, I had my doubts as to their genuineness; but perhaps your opinion may help to set me right.

In paying a visit to one of the oldest bee-keepers in Fife,—he has seen nearly eighty summers, and kept bees most of his time,—after asking how his bees had got on this season, his answer was that this was the worst season on record. In answer to my question if he had got any honey, his reply was, 'Not a blob,—not a blob, this year.' He showed me one of his hives that had been in use as a nadir. It was a round straw skep, size 18 by 14 inches deep, about three-parts filled with combs, and if they had been filled with honey, he considered it would be worth 3*l.*, which I did not doubt.

In looking over your last issue of the *Journal*, I find Mr. Raitt has in his apiary two queens living in harmony in one hive, the only instance that I, or the oldest bee-keeper of my acquaintance, ever heard of. Might there not be some peculiarity about the drones bred in the imported comb-foundations, which led to the idea of two queens living in harmony in one hive?—John White, *Falkland, Fife.*

BEES IN FORFARSHIRE.

Bees in this quarter are now settled down in their winter nest, and those who have fed and attended to them according to the instructions you have given in the last two numbers of the *Journal*, will have their stocks in good order in the spring. There are scores, however, who do not, and cannot be made to understand the necessity of giving their bees enough food in good weather (and good time), to carry them through the winter, and the consequence will be that hundreds of stocks will be lost this winter through starvation. I have heard that those who had gone to the moors with them, have lost the most of them already; and the remainder are so reduced, that it will be impossible to carry them through the coming season.

This has been a most unfortunate year throughout for bee-keepers, and hundreds will be so discouraged that they will abandon the pursuit altogether.

The enclosed, which I picked out of a newspaper, deserves a corner, I think, in the *Journal*.—J. S., *Arbroath.*

Taking the Starch out of a Doctor of Divinity.—The Nether-Lochaber correspondent of the *Inverness Courier*, although a minister himself, has no sympathy with divines who attempt to be stiff or stately. He writes:—'It has been observed that a well-dressed man of stately presence and conscious dignity never looks so small and laughably ridiculous as when he is in hot pursuit of his hat, which a gust of wind has blown off his head, as it tumbles adown some busy thoroughfare of a populous city. We think, however, that once at least we saw something more ridiculous still, and here on our own land in Nether-Lochaber. It was in the case of a dignified and reverend D.D. of the Church. Accompanied by the said reverend Doctor of Divinity, we one afternoon ascended a steep brae-face just behind our house to see how a man, who was cutting hay on a strip of meadow land above, was getting on. While speaking to the man we noticed two or three red-doup bees hovering about a small mossy protuberance just beyond the next sweep of the scythe.' And then the correspondent tells how he got the byke disturbed and the bees roused. The result to the Doctor of Divinity follows:—While our reverend friend with both hands wind-mill-wise was warding off the attack of two or three bees that seemed determined to make the closest possible acquaintance with his eyes and forehead, a skirmishing red-doup took him in flank, got 'in,' in pugilistic phrase, on a nice, tender place (catch a red-doup selecting any other than a tender place whereon to operate!) on the cheek, just under the lobe of the left ear. Our D.D. yelled like a Muscovite transfixed on an Osmanli bayonet, and darted down the brae with a headlong impetuosity that, had he chanced to miss a step, must infallibly have broken his neck. He soon lost his hat, too, which gave the bees a grand opportunity of singing their song of vengeance in his ears as they circled round and round his head, like so many planets round their primary. At last he got into the house and rushed into his bedroom with such wild gesticulations that our women folk took it into their heads that he had suddenly gone mad. Believe us that all the starch and buckram was effectually taken out of that divine during the remainder of his stay with us. He was very big and stiff and stilted when he reached us; he became companionable and pleasant enough after the momentary contact between the lance of that skirmishing red-doup and his upper *maxilla*. During the remainder of his stay, however, he flatly refused to revisit that particular bit of meadow land, though we more than once hinted that the view from thence was a very fine one and *the descent easy.*'

DRIVING AND UNITING.

The following is for the information of F. S., *B. B. J.*, Oct., p. 109:—

I am told by a bee-keeper who has united his bees for the last eighteen years, that when the bees of the two hives to be united are thoroughly stupified with puff-ball, and mingled together without loss of time, the operation is in every case thoroughly successful.—Arthur S. B. Miller, *Apiarian, Cambridge.*

SINGULAR CASE.

A curious case has just occurred in my apiary, which I think worthy of notice. Suspecting foul-brood in my only Ligurian hive, I drove the bees, and united them to a swarm of queenless black bees. On the following day I found the Ligurian queen dead outside, evidently the result of carelessness on my part. To strengthen the swarm I added yet another, after six weeks' interval, with a black queen at their head. The following day, to my great astonishment, I found that the whole of the Ligurians had been put to death, and cast forth. I carefully

examined the heap of slain, and did not find a single black among them. Can anyone explain this? The honey harvest in Perth has this season been miserable, as elsewhere. As, however, my hives were mostly very strong in bees during the only fortnight that the weather and heather suited, I have secured nearly a hundredweight from twelve stocks.—D. Paterson, *Struan, Oct. 13th.*

THE STEWARTON HIVE AND SYSTEM.

By the 'Renfrewshire Bee-Keeper.'

The Stewarton Hive, as I first found it, consisted of three octagon breeding, or, as locally termed, *body* boxes, 14 inches wide, by 6 deep, each furnished with seven bars, 1½ inches broad, the ⅜ spaces between, filled with moveable slides of wood, working in grooves in the bars, with a shuttered window back and front, handles to lift with, hooks to weigh with, and little buttons to prevent displacement. In the centre, across from side to side, was fixed a half-inch square bit of wood to support the combs, the one or two supers, or honey-boxes, were exactly alike, but only 4 inches deep, and without the cross-stick, all neatly dove-tailed at the corners—the whole forming one hive, which is usually described as a 'Stewarton Set.'

My earliest acquaintanceship with bee-keeping began, as will afterwards be alluded to, with moveable bars and the nicest calculations as to their distances apart, from centre to centre, were made, where our little favourites had ample space to work at their own sweet will; and every true student of Nature must follow humbly in their wake. I had also a very great repugnance to the mode in which my new hives were divided. The broad 1½ inch wide bars of the supers were all right enough, and a capital idea, too, which I had never met with in the 'authorities,' as the thicker and more massive the honey-comb the more striking its appearance; besides, the additional depth of the cells renders them unfitted for brood, should the queen unfortunately find her way up at any time into them, and their extra shallowness, as honey boxes, is a similar preventative against their being so employed, while conducing most materially to the better classification of the honey harvested. The only fault I had to find with them was the fixity of the bars; the sprigs with which they were nailed I had at once withdrawn, and ½-inch brass screws were substituted. But 1½-inch wide bars for brood-comb in the breeding-boxes were a manifest absurdity, and I had them removed (saving the outermost at either side), as these, in whatever description of hive employed, are invariably used for storing honey, but condemned the other five, and in their place fixed six bars 1⅛ inches broad, with screws. I increased the depth of boxes from 6 to 7 inches (the latter being the depth of the square hives I had previously used), and I need not hint, but to the beginner, the desirability of keeping up, as much as possible, strict uniformity of dimensions in whatever description of hive employed, for the interchange of combs and other reasons. My present strong octagon stocks during the season are wrought with two 7-inch breeding-boxes, and a 4-inch eke. Finding an entrance of 5 inches long by ½ an inch deep inadequate to vent the bees of such populous colonies at the height of the season, I opened a corresponding one in each of the octagonal divisions, on either side of the front one, with the very best results, from the increased freer egress and ingress thereby afforded to the teeming populations, besides the exhilarating effects of so much fresh air, caused a considerable saving of labour power in fanning, to be more beneficially employed in the storing of honey.

The general mode of manipulating the Stewarton Hive is to lash a couple of the breeding-boxes together at the weighing hooks with cord, after the bars of the boxes had been duly furnished with comb, or embossed wax-sheet, run in the sliding door of the upper, withdraw all the slides of the lower, and close the openings with the little pegs accompanying the boxes. With the free communication between, the two become to all intents and purposes one, and the bees may then be introduced—a prime swarm, of course. Some eight or ten days thereafter a second prime swarm, if procurable, is hived in the third breeding-box, and at once set down close to the earlier one, and at dusk the last named is placed on the top of it. The lower of the two first boxes—now the central—has its door run in, and the slides of the lowest are removed and pegged as before. Should the evening prove chilly, a whiff of smoke may be administered to both, but this is generally considered quite unnecessary, as it is a well-established fact that no bee leaves with a swarm till it has filled its honey-bag, and the lower ascends with a most confiding hum, evidently firm believers in the old Scotch proverb, 'Plenty freens when ye hae ocht.'

Mr. Alfred Neighbour's useful treatise, 'The Apiary,' if I remember, on this point teaches that the swarm to be added is first to be knocked out upon a table-cloth; the operator is to move the earlier swarm in the two boxes, and set them on a couple of bricks till the bees have joined, and then it is to be carried back to its stand. Now, knocking out bees on a table-cloth at dusk, with probably a falling dew, is a questionable proceeding at the best, and to so unite with a hive possessing the ingenious contrivance of the bar and slide of the Stewarton, most uncalled for. Suppose the operator be a novice, and after sundry thumpings on the straw skep to get the bees thoroughly out upon the table-cloth, he hurries off for the other hive, and in his trepidation as he bears it along, which is not to be wondered at, one of the watchful guards administers a sharp sting, causing him to wince; and if the boxes are put the smallest degree off the balance, down come the tender, soft combs, *en masse*, ere he may reach the cloth; or does he stand firm till then, and sets them down with anything like a sharp thud, a similar result follows; or if any of the straying bees are trod upon accidentally, and the war-note once sounded, what a *mêlée* follows! Portions of the bees are apt to stray under the cloth and get chilled and lost, or a detachment might find its way up the operator's inexpressibles, and then what a kicking and rubbing will ensue! The great simplicity and facilities of uniting with the bars and slides induced me to order a quantity of these in lengths, along with the boxes, which I cut up and fitted to my

other hives, and the reader would find the advantage of doing likewise.

But to return. The morning light reveals usually nothing but the surplus queen dead on the floor-board. The lowest box is then removed, and the entrance of the second again opened. Should any bees be clustering in the lowest, the removal can be postponed till the middle of the day, when the workers will be more abroad. The object of removing the third box is to restrict the room so that the combined swarms may all the sooner complete comb-building and packing to the glass, and be thankful to press up into the super which has been placed thereon, fitted with guide-comb. Communication between stock and super is afforded by drawing the outer slide on either side only. Should the weather be favourable, and honey abound, it is at once taken to; if not, it is better to run in the slides again and wait for a day or two, then, under more favourable circumstances, make a fresh trial, as it is a curious fact that bees often will swarm rather than accept a super open to them, and which they have previously rejected. Supposing, which is generally the case, the bees have taken possession; in a very few days white comb appears at the windows; then, and not till then, the third breeding-box is placed as a nadir underneath all, its slides withdrawn, and pegged as at the union, and the doorway of the central box closed once more. The colony may now be said to be fairly under weigh; and should favourable honey-gathering weather continue, a second honey-box may be placed on the first, and all the slides of the first super withdrawn. To induce the bees all the more readily to take to the supers, I have found it of considerable advantage to run a strip of gummed paper round the juncture of the stock with the super as well as with it and succeeding ones, should it be taken to, or if honey be plentiful, a second slide on either side of the top box may be withdrawn, at first either partially or wholly. This is a nice operation, dependent on the flow of honey, and the bee-master must exercise his own discretion, so as, if possible, to prevent the incursion of her majesty into the super. The plan of admitting only the honey-gatherers of the end combs to the supers, to the exclusion of the queen, the nurses, and the pollen-collectors of the centre, is a most ingenious, original, and indeed one of the most valuable features of the Stewarton system. A third and other supers may still be called for, and the additional super accommodation afforded, always uppermost, and in exceptional cases even additional breeding space by nadiring at bottom may be requisite, although the strong colony referred to in your last issue, was wrought with but 18 inches breeding space, while filling *seven* honey boxes or supers in various stages of progress. To get bees to take to supers at first, and to work in them steadily through the vicissitudes of temperature, it is indispensable that they be well wrapped up with some warm woollen stuff. I generally employ old crumb-cloths for this purpose, four plies thick, and need I add that the Stewarton hive being formed of wood but $\frac{3}{8}$ of an inch thick, it is of course requisite, and must have the protection of a bee-house or shed from the direct rays of the sun; or, better still, an outer octagon case, with a nicely levelled roof, and an ornamental vase on top, forms a most admirable adjunct of the apiary or garden.

So soon as the lowest super is seen sealed at the windows the attachments between it, and the stock and the second super severed with a thread, had better be removed, the next lowest taking its place and so on, till the end of the season. When all are removed, and slides re-introduced, then as cold weather sets in, and the lowest breeding-box vacated, it too is better taken away, the slides replaced, the mouth wrapped carefully up with paper to exclude moth and dust, and suspended in any cool, dry garret, till required the next season. To obviate the accumulation of moisture, in a glass observatory stock, working in a staircase window I tried with great success fine India or Cuba matting to cover the slide spaces, and by the thorough ventilation thereby afforded, that colony successfully withstood 25° internal frost, as shown by the inside thermometer on the memorable Christmas Eve of the very severe winter of 1860 and 1861; and ever since I complete my wintering preparations by withdrawing all the slides from the topmost box, and tacking on an octagon of matting, bound round its edges to prevent rippling, and by these contrivances my little favourites come through the winter as dry and snug as in the most porous of straw skeps. The slides, of course, take the place of the matting again when breeding commences with the advancing spring.

At first I procured my boxes from a party who advertised and sold them, but from alterations I wished made in their construction, I was obliged to correspond direct with Mr. James Allan, cabinet-maker, Stewarton, their maker; and I understand the Messrs. Craig and Dr. Wylie turn out a good job, but personally know little or nothing of the manufacturers, my sole interest being to see I get good workmanship. One thing, however, I may mention, that our local tradesmen cannot make them to compete at Stewarton prices; and several I know, who are bee-keepers themselves, actually order their boxes direct from Stewarton, instead of making the attempt at turning them out at the extreme low prices at which they are procurable there.

BEE-KEEPING.

Prize Essay. By Mrs. E. S. Tupper.

(*Continued from page 206, Vol. III.*)

Ten of the doubly strong colonies I treated in this way: I took from the centre of each hive, every week in June, a frame of brood and honey, supplying its place with an empty frame. Two of these swarmed in spite of this, and as the frames taken out were used in forming new colonies, it would not have been called a 'prevention of swarming' if none had swarmed. Those that did swarm were, at that time, storing in sixteen boxes each, proving that bees do not migrate always for want of room.

In June, I took the queens from twenty of these strong colonies, replacing them with young ones just commencing to lay, or with queen-cells ready to hatch. Not one whose queen I changed in this way swarmed, but all worked on seemingly with new

energy through the season, care being taken to give them ample room in the main hive for brood, and to change full boxes for empty ones as often as necessary. The quantity of honey obtained from each of these hives varied much. The least obtained from any one was fifty pounds; the greatest yield from one was ninety-six pounds, the average to each being sixty-two pounds. The colonies which swarmed that year all made some honey in boxes, the average being fifteen pounds. The swarms from these also stored honey, the average being thirty pounds. Thus we have an average of forty-five pounds (fifteen from the parent hive, and thirty-four from the swarm) from the swarming, against sixty-two pounds from the non-swarming hives. From the former a good colony was obtained to offset the seventeen pounds more honey averaged from the latter. These experiments were all made with the common bees.

I had previously made an ingenious calculation of this sort: 'The bees consume twenty pounds of honey in forming one pound of wax. The empty comb, in a hive the size I use (2000 cubic inches), weighs three pounds. Thus, sixty pounds of honey are consumed in making the empty comb alone to furnish the new hive. At least sixty pounds more will be used in storing the comb and raising the brood to populate it, and thirty more to furnish it with winter store. This gives one hundred and fifty pounds of honey spent on the new colony. Supposing the bees to have remained in the old hive, this one hundred and fifty pounds might have been stored in boxes.' Now this calculation is all true, but the fact remains that the bees will not put as much honey into boxes as they will gather to stock and store a new hive. The empty home stimulates them; their necessities drive them; and they 'work with a will' under such circumstances, as all know who have noticed the untiring energy of a new swarm.

In the summer of 1865, I tried this plan again on a larger scale, giving to each of thirty-seven hives, in May and June, a young queen in place of an old one. Only one of these swarmed, and, in that instance, I was quite sure that they destroyed the queen given them and raised others, and this caused them to swarm.

Writers in Germany assert it as an established fact, 'that changing an old queen in any hive for a young one of the current year, *before preparations for swarming have been made*, will prevent it for that year.' I am not prepared as yet to say that this will always be effectual, nor can I assign any reason satisfactory to my own mind why it should *prevent* swarming. I have given the results of my experiments, and they certainly go far to prove the fact. I would recommend all who are Italianising their bees to try this plan, and see if like results follow from their change of queens. If swarming can be prevented in this way, no better method need be sought, as it secures young and healthy queens in all hives. The rearing of queens and exchanging them is a very simple matter, and if there is a demand for queens, those taken away can be sold instead of being destroyed.

The price of honey and the demand for bees in different places must decide which is most profitable to raise, bees or honey. In most places I think bee-keepers will find it pay best to secure a moderate increase every year by making one swarm, very early, from four or five old ones. In this way, quite as much, if not more, surplus honey will be obtained as when there is no increase, and the value of the new swarms (whatever that is in your locality) is just so much extra profit.

To the class of bee-keepers who prefer the non-swarming method, a statement from the German *Bienenzeitung* (or Bee Journal) of February 15, 1864, made by M. B. G. Klein, will be interesting. He lives near Gotha, limits his apiary to eighty hives, restricts swarming as much as possible, and unites such swarms as do come with the colonies found to be weakest in the fall; carefully preserves the combs made by them for use the next spring, and winters them in the shallow, moveable-comb hives; but does not say whether indoors or out.

From eighty hives he obtained *a profit*

in 1861 (a very favourable year) of	$601 82
1862 (an exceedingly poor year) . .	76 87
1863 (a good year)	246 96

The average price of honey there is only about eight cents per pound of our currency. Though this may seem a satisfactory profit, it is small compared with what has been obtained from bees when allowed to multiply in this country. I cannot give statistics of the amount of profit from bees in other States, but some results in Iowa far exceed this.

E. G. M'Niel, of Tipton, Iowa, says, 'I shifted six colonies of bees out of logs into the moveable-comb hive for a gentleman, in May 1859; that year he increased to 24, and took 500 pounds of honey. The next spring he began with eighteen weak colonies and increased to forty-six; this year (1860) he took off 1000 pounds of honey. In 1861 he increased to sixty colonies, and took off 2200 pounds of honey. In 1862 he increased to 104 stands, but it being a poor season, he obtained only 1500 pounds. In 1863 he increased to 160, and took off 3000 pounds of honey. Thus he obtained 8200 pounds of honey and 151 colonies in five working seasons.

I am not prepared to give an accurate statement of each year's gains, either in honey or stock, since I commenced bee-keeping; but in the spring of 1859 I purchased four hives for $20, two of which died before flowers came. In the autumn of 1865 I was offered $1500 for my stock of bees, but declined selling, as they were worth much more than that to me. Thus we have, in six seasons, an increase from $10 to $1500 in the capital alone, with no account of honey sold each season, or of bees sold repeatedly.

During the summer of 1864, I sold from twenty-two hives $409 20 worth of honey. Two of these seasons are called the poorest ever known in Iowa. What branch of agriculture or horticulture pays better than this?

Uniting Bees.—In the fall, in every apiary, some weak stands will be found. Some will have too few bees, others too little honey. In the old-fashioned bee-keeping, such colonies were destroyed by fumes of burning brimstone and the honey and wax appropriated. This is a very expensive way, but with the moveable-comb hives, not a bee need be lost and all

comb may be saved for the use of the bees in the future. All can see that it is poor economy to let bees live until they consume all the honey, and then die of starvation; better the old way than this. But if one containing enough honey but too few bees, be united with one that has numbers and but little honey, they make one valuable stand. So two weak ones united make one good one; for a large colony does not consume nearly as much honey, proportionally, as a small one. In the spring, too, in spite of all care, some will be weak; and these are much more profitable if united with strong ones than if nursed until flowers abound.

Bees can be easily united, and will work as one colony. Some sprinkle both with sugar-water scented with peppermint, or other strong odour, to give them the same scent, and then put both in one hive. I find it easy to do it without this, and never have any difficulty in the operation.

I alarm the bees of both hives which I wish to unite, then leave them a few moments to fill themselves with honey. I then put one of them over an empty hive (my hives have moveable bottoms), take each frame out, and shake or brush the bees into the hive below. When all are out set the other in its place and proceed in the same way. The bees all brushed together thus into an empty hive are too much frightened to quarrel. I then arrange all my frames containing honey in one hive, and set it over the one in which the bees are. They all go up rapidly and take possession of the frames like one colony. One of the queens will, of course, be *killed*, so if you have any choice between them, find out the one you care least for and destroy her.

Every empty comb should be saved; indeed, no piece of good worker comb should ever be melted to wax—it is worth $5 a pound in honey boxes or fastened into the frames for the use of the bees. I once tried an experiment which convinced me of the great saving in providing bees with empty comb when it is possible. I had two large natural swarms come on the same day. One of them I put into an empty hive, and the other into one well filled with comb. The one in the empty hive filled it up for winter, but stored no surplus honey; the other not only filled the combs, but stored fifty-two pounds of honey in boxes. There was no apparent difference in the size or circumstances of the two swarms. The value of the comb, melted for wax, would not have exceeded a dollar at that time, while the honey sold, at 15 cents per pound for $7 80. Straight worker combs, in moveable frames, are better than cash capital to a bee-keeper, and should be most carefully saved. Combs must be kept until wanted for use in a cool dry place, to guard against mould; mice are very destructive to them. I hang mine on a rack where mice cannot get them, and where they have abundant air. Two or three frames filled with worker comb, given to a swarm when it is first made, or hived, are a great help, and cause them to build all their combs straight.

Honey Resources.—Every bee-keeper should know the honey resources of his range. They differ in different localities. My apiary is near a river bottom, where the bees have a large forest range, and here there are few days from April to October in which they do not find honey. In many localities, much may be done to increase the yield of surplus honey by keeping buckwheat in blossom most of the summer. Germans estimate the yield of honey from one acre to be from 320 to 350 pounds. This crop, however, yields much more honey some seasons than others. Bees do not like buckwheat when they have anything else; and several seasons when I have had acres of it sowed for them, I have obtained no pure buckwheat honey, while another year the buckwheat sown from the last of July has added many pounds to my surplus boxes.

White clover yields much honey for several weeks, and where it abounds bees are sure to do well. The Alsike or Swedish clover, where it has been introduced, is of great benefit. Black or common bees cannot reach the honey in red clover; the Italians can and do, under some circumstances. In the latter part of July, 1864, my common bees were idle and losing weight daily; but my Italians steadily stored honey in boxes. I took off twenty-six-pound boxes from the Italian colonies, while the others did nothing. It was evident that they were obtaining it from some source not accessible to the common bee. On visiting fields of clover at various times I found it always swarming with 'yellow jackets.' On account of the drought the blossoms were smaller that year than usual. Late in September and early in October in the same year I had several boxes filled by the Italians after the common bees had done storing; and this honey, I doubt not, was obtained from the second crop of red clover. In some sections rape and mustard, if sown for the purpose, would come in and fill up in time of scarcity.

It is recommended by some to cultivate borage for bees. It undoubtedly has honey in it, and is a favourite with them. But there are few regions of our country where it will pay to sow it. It is an annual, and is easily grown. It is better than weeds that have no honey, if that can be called praise. If any one watches his bees closely one year, he will discover at what date they are idle, and he should arrange for another season to have some honey-producing plants in blossom just when they are needed. By this way one may add many pounds to his surplus honey.

In Europe it is customary to move bees from place to place, as different crops come in bloom, and much attention is paid to raising crops which, in addition to other value, yield honey. In few parts of our country will this ever prove necessary. Wherever I am acquainted with the resources, it seems to me more necessary to have strong colonies at the right time, if we would secure large honey crops.

The vicinity of bees to water is a matter of more consequence than would be supposed by one who is not acquainted with their habits. It is asserted that a colony of wild bees is never found elsewhere than near a stream, lake, or river. Bees use much water, both in preparing winter food for their young, and when they themselves are secreting wax. If no water is near the apiary, shallow troughs, with floats in them, should be kept constantly filled with water for their use, and in this way much time and labour be saved them.

(To be continued.)

APIARIAN LITERATURE, IN CHRONOLOGICAL ORDER.

18TH CENTURY.

(*Continued from page* 113.)

N. (German). Papers on Bee-culture. Manheim, 1779.
Ramdohr, J. Ch. (German). Plan and Description of Apiary with Storifying Hives. Goettigue, 1779. 2nd edit. 1790. 3rd edit. 1797. 4th edit. 1812.
Christ, J. L. (German). Treatise on the Most Useful and Best Mode of Apiculture. Leipzic, 1780. 2nd edit. 1783. 3rd edit. 1798. 4th edit. 1804. 5th edit. 1820. 6th edit. 1841.
Eyrich, J. L. (German). Bee-keeper's Calendar. Nuremburgh, 1780.
Hoelscher, H. C. (German). Experiences of a Bee-keeper. Hanover, 1780.
Zeghers. Des meilleurs moyens d'élever les Abeilles en Belgique. Bruxelles. 1780.
Kortum, K. A. (German). Reply to some Observations of Riem. Munster, 1781.
Martini, Ch. F. (German). Artificial Swarming. Leipsic, 1781.
Pingeron. Traité Complet Théorique et Pratique de l'Education des Abeilles. Amsterdam, 1781.
N. (German). History of my Bees and their Treatment, from 1781 to 1782. Dessau, 1783.
Luttichau, H. V. (German). Catechism for Bee-friends. Dresden, 1783.
Mastalier, J. Dissertatio de Ape mellifica ejusque Morbis. Vienna, 1783.
Müller, J. M. Ch. (German). The Austrian Bee-keeper. Vienna, 1783. 2nd edit. 1839.
Hampel, Ch. (German). Practical Guide to Bee-keeping on the Storifying Principle. Frankfort-au-Maine, 1784.
Lagrenée. L'Art de gouverner les Abeilles. Paris, 1783. 2e édit. 1784.
N. (German). Rules of the National Apiarian Society of Bavaria. Munich, 1784.
Poessl, F. H. (German). Complete Manual of Apiculture, Forestry, and Horticulture. Munich, 1784.
Buchoz. Histoire Naturelle des Insectes Utiles à l'Homme. Paris, 1785.
Harasti, G. (Italian). Manual of Bee-keeping in Tuscany. Florence, 1785.
Noel-Courant. Traité sur le Gouvernement des Abeilles. Paris, 1785.
Boecklinsau, Boecklin de. (German). Bee Hives. Frankfort-sur-Mein, 1786.
N. (German). Manual of Bee-keeping. Tubingen, 1786.
Riem, J. (German). On Bee-keeping in Holes of Trees. Dresden, 1786.
Wurster, S. F. (German). Complete Manual of Bee-keeping in Hives on the Storifying Principle, &c. Tubingen, 1786. 2nd edit. 1790. 3rd edit. 1804.
Albrecht, J. F. E. (German). Ideas on the Three Genders of Bees. Lubeck, 1787.
Beraud. Mémoire sur l'Education des Abeilles. Marseille, 1787.
Gosler. (German). Ideas on the Three Genders of Bees. Bayreuth, 1787.
Planazu. Traité sur les Abeilles. Paris, 1787.
Poessl, F. J. (German). Practical Catechism of Apiculture. Munich, 1787. 2nd edit. 1810.
Scopoli, J. A. Dissertatio de Apibus. Vienna, 1787.
Willmann, F. W. (German). Treatise on Apiculture. Mittau, 1787.
Harasti, G. (Italian). Management of Bees in Lombardy. Milan, 1788.
Spitzner, J. E. (German). Treatise on Bees. Zittau, 1788.
Spitzner, J. E. (German). Theoretical and Practical Description of Apiculture, with straw hives. Leipsic, 1788. 2nd edit. 1810; 3rd edit. 1823.
Stoixner, L. V. (German). Complete Instructions in Apiculture. Nuremberg, 1788. 2nd edit. 1808.
Gouffler. Explication d'un Modèle d'une nouvelle Ruche. Paris, 1789.
Janisch, J. A. (Bohemian). Practical Bee-keeping in Bohemia. Prague, 1789.
N. (German). Rules and Principles of the Apiarian Society of Lamprechtswalde. *s.l.* 1789.
Strube, Ch. F. (German). Treatise on Practical Bee-keeping in Lower Silesia. Celle, 1789. 2nd edit. Hanover, 1793. 3rd edit. 1796.
Ferrière, De la. Traité des Abeilles. Paris, 1790.
Janisch, J. A. (German). Complete Instructions on Apiculture. Vienna, 1790.
Klima, M. (German). Apicultural School for Villages. Brun. 1790.
Riem, J. (German). Apiarian Models. Leipsic, 1790.
Christ, J. L. (German). Natural History of Bees. Frankfort, 1791.
Hulfreich, E. (German). Manual for Countrymen. Vienna, 1791. 2nd edit. 1809.
Roehling, J. E. (German). Essay on the Universal History of Bees. Frankfort, 1791.
Dorat-Cubières. Les Abeilles, ou l'heureux Gouvernement. (Poëme.) Paris, 1792.
Kienreich, J. E. (German). The Perfect Bee Master. Gratz, 1792.
N. (German). Almanack for Bee-keepers. Leipsic, 1792.
N. (German). Treatise on Bee-keeping for Everybody. Halberstadt, 1792.
Friederich, J. P. (German). Experiences for Bee Friends. Berlin, 1793. 2nd edit. 1799.
Beheke, J. G. (German). On Apiculture. Berlin, 1794.
Coupé. Rapport sur la Conservation et la Multiplication des Essaims. Paris, 1794.
Lucas, J. G. (German). Instructions on Bee-keeping. Leipsic, 1794. 2nd edit. 1809.
N. (German). The Surgery of Pigs and Bees. Leipsic 1794.
Bogsch, J. (German). Short Treatise on Natural and Tested Bee-keeping. Vienna, 1795.
Chabouillé. Traité sur les Abeilles. Paris, 1795.
——— Construction d'une nouvelle Ruche. Paris, 1795.
Duval. Le Tresor des Mouches à Miel. Remiremont, 1795.
Gervais. Histoire et Education des Abeilles. Aix, 1795.
Gotthardt, J. G. (German). Complete Manual of Apiculture. Erfurt, 1795. 2nd edit. 1797.
L——. Essai sur les Abeilles. Digne, 1795.
Lucas, J. G. (German). Treatise of Apiculture. Leipsic, 1795. 2nd edit. 1809.
L. L——. (German). Complete Treatise on the Knowledge and Culture of Bees. Augsburgh, 1795.
Settegast, D. G. (German). Catechism of Apiculture. Koenigsberg, 1795.
Spitzner, J. E. (German). Critical History of the Opinions on the Gender of Bees. Three parts. Leipsic, 1795–1796.
Stumpf, J. G. (German). Three times seven Advantages of Bee-keeping. Rostock, 1795.
Werner, J. E. (German). Manual on the Simplest Treatment of Bees. Gera, 1795.
De Gélieu, J. Description des Ruches cylindriques en Paille. Bâle, 1796.
Heydenreich, K. H. (German). Information for Bee-keepers and Attendants. Wittenberg. 1796.
——— My Experiences and Opinions on the True History of Apiculture. Nuremberg, 1796.
Kortum, J. E. P. (German). Several Treatises on Apiculture. Neustrelitz, 1796.
Paris. Manuel Pratique sur la Culture des Abeilles. Paris, 1796.
Rissler. (German). Description of the Round Hive of Gélieu. Mulhouse, 1796.
Seybold. (German). Short Treatise on Apiculture. Ausbach, 1796.

Weissenbruch, J. W. J. (German). The Simplest and Easiest Culture of Bees. Offenbach, 1796.
Hauer, J. H. (German). Short Treatise on Bee-keeping in Storifying Hives. Quedlingbourg, 1797.
Gotthardt, J. Ch. (German). Complete Treatise on Apiculture. Erfurt, 1797. 2nd edit. 1804.
Heumann, J. (German). Theoretical and Practical Treatise on the Knowledge of Bees. Eclangen, 1797.
Oelrichs, J. K. K. (German). Remarks on the Usefulness of Apiculture and Horticulture. Berlin, 1797.
Spitzner, J. E. (German). Short History of Drone-breeding Queens. Bayreuth, 1797.
Valois della Pina, F. (German). Practical Manual of National Apiculture in Austria. Vienna, 1797.
Voigt, J. C. (German). Short Narrative of the Mothers of Drones. Culmbach, 1797.
Glendorf, H. (German). Principles and Manipulations for Bee-keeping in Straw Hives. Berlin, 1798.
Immen, K. F. V. (German). Practical Treatise on Bee and Silk Culture. Leipsic, 1798.
Kaiser, K. F. (German). Manual of Bee-keeping with Straw Hives for Luneberg. 1798.
Réaumur. Histoire du Bourdon. Dresden, 1798.
Riem, J. (German). Short Treatise of Apiculture. Dresden, 1798.
Roth, J. Th. (German). Manual of Bee-keeping. Nuremberg, 1798.
Staudtmeister, J. E. (German). Knowledge of Bees. Leipsic, 1798.
Barras. Mémoire sur l'Education des Abeilles. Paris, 1799.
Bosc, H. A. H. (German). Practical Treatise of Horticulture, Pisciculture, Apiculture, &c. Leipsic, 1799.
Büschling, J. L. and Kaiser, K. F. (German). Bee-keepers' Journal, 1799–1835.
Ehrenfels, J. M. J. V. (German). Project and Invitation to a National Apiarian Society in Austria. Vienna, 1799.
Labalte. Moyen de s'enrichir en s'amusant. Paris, 1799.
Ohlendorf, H. (German). Principles and Manipulations for Bee-keeping with Straw Hives. Berlin, 1799. 2nd edit. 1826.
Staudtmeister, J. E. (German). Discoveries and Experiences for Bee Friends. Halle, 1799.
Vallée. Discourses sur les Abeilles. Paris, 1799.

19TH CENTURY, FIRST HALF.

Cramer, J. G. (German). The Cautious Bee-keeper. Altona, 1800.
N. (German). Apiarian Literature. Nuremberg, 1800.
N. (German). Treatise on Practical Apiculture, extracted from foreign works. Leipsic, 1801.
Riem, J., Kertzig, &c. (German). Instructions on Apiculture. Leipsic, 1801–1802.
Chalumeau. Instructions pour la Multiplication des Abeilles. Chateauroux, 1802.
Lombard. Manual for Cottagers on Managing Bees, &c. Paris, 1802. 2nd edit. 1803. 3rd edit. 1805. 4th edit. 1811. 5th edit. 1812. 6th edit. 1825.
Lucas, J. G. (German). Essay of a Profound Treatise on the Management of Bees. Leipsic, 1802.
Matuschka, B. (German). New Discoveries and Considerations on Bees. Berlin, 1802.
Serain. Instruction sur la Manière de gouverner les Abeilles. Paris, 1802.
Wurster, S. V. F. (German). The Robbing of Queenless Hives. Tubingen, 1802.
F. A. (German). On Artificial Nourishment. Leipsic, 1803.
Lucas, J. G. (German). Various Papers on Bees. Leipsic, 1803–1804.
N. (German). The Wise and Careful Bee-keeper. Leipsic, 1803.
N. (Italian). Instructions on the Art of Cultivating Bees. Venice, 1803.
N. Paper on the Wintering of Bees. Valence, 1803.
Le Pelletier. Pratique Nouvelle pour multiplier les Essaims et récolter le Miel. Caen, 1803.
Rümelin, J. F. E. (German). Exhortation to a Lasting Apiculture in great style. Stuttgart, 1803.
Waeser, J. W. (German). The Whole Sum of Apiculture. Posen, 1803.
Andreae, F. W. (German). Apiculture according to the most recent Discoveries. Stuttgart, 1804.
Goetz, J. K. (German). Theoretical and Practical Treatise on Apiculture. Nuremberg, 1804. 2nd edit. 1814.
H——. Dr. (German). The Bee Pest. Dresden, 1804.
N. L'Education des Abeilles simplifiée. Paris, 1804.
Reuss, N. F. (German). The Franconian Bee-keeper. Bamberg, 1804. 2nd edit. Frankfort, 1813.
Riem, J. (German). Papers on Economy and Physics for Agriculturalists and Apiculturists. Leipsic, 1804-1805.
Christ, J. L., and Wurster, F. (German). General Vocabulary of Apiculture. Frankfort, 1805.
Hülfreich, E. (German). Treatise of Apiculture. Leipsic, 1805. 2nd edit. 1821.
Knauff, J. Ch. (German). Treatment of Bees. Mulheim, 1805. 2nd edit. 1819.
Lombard. Etat de nos Connaissances sur les Abeilles. Paris, 1805.
Manuel. Histoire Particulière de l'Abeille, &c. Paris, 1805. 2 vols.
Matuschka, B. (German). The New Doctrine. Berlin, 1805.
Spitzner, J. E. (German). Perpetual Calendar for Bee-keepers. Leipzic, 1805. 2nd edit. 1810.
Wollstein, J. F. The Art of Rearing Horses, Bees, &c. Gotha, 1805.
Wurster, S. F. (German). Journal of the Observations and Experiences of Bee-keeping. 1803-1807.
Leopold, J. L. G. (German). Village Bee-keeping. Nordhouse, 1806.
Milco. Catéchisme de l'Amateur des Abeilles. Metz et Paris, 1806.
Riem, J. (German). Treatise on the Natural History and Economy of Bees. Dresden, 1806.
Spitzner, J. E. (German). Bee-keeping in Straw Hives. Pesth, 1806.
Lucas, J. G. (German). The Saxon Bee-keeper Leipzic, 1807-1808. 2 vols.
Matuschka, B. (German). A New Apiarian Calendar. Berlin, 1807.
Monticelli, Th. (Italian). On the Mode of Managing Bees at Favignana. Naples, 1807.
Poessl, F. J. (German). Bee-keeping. Munich, 1807. 2nd edit. 1810.
Brosig, A. (German). Practical Treatise on Bee-culture. Vienna, 1808.
Harasti, G. Ch. (Italian). Catechism on the Rational Management of Bees in Tuscany. Florence, 1808.
Hermes, J. G. (German). Bees and Pigeons. Zerbst, 1808. 2nd edit. 1819.
Lombard. Mémoire sur la Difficulté de blanchir la Cire de France. Paris. 1808.
Lucas, J. G. (German). Essay on the Scientific System of Bee-keeping. Leipsic, 1st Part, 1808.
N. (German). The Experimental Bee-master. Luneburgh, 1808. 2nd edit. Einbeck, 1809.
N. (German). The Experienced Apiculturalist. Nuremberg, 3rd edit. 1808. 1st and 2nd edit. (?)
N. (German). The Instructions of Various Apiarians. Erfurt, 1808.
Rumelin, J. C. F. (German). Advice to the Inhabitants of Wurtemberg for a Lasting Apiculture in Grand Style. Stuttgardt, 1808.
Sickler, J. V. (German). On Bee-keeping. Erfurt, 1808. 2nd edit. 1810.
Stoixner, E. V. (German). Complete Manual of Bee-keeping. Vienna, 1808.

(To be continued.)

Echoes from the Hives.

Liverpool.—'Were I to make any remarks respecting our favourite hobby, it would only be of a piece with what you have had already plenty of—that is, doleful news. With my own and my neighbours' bees I am "making the best of it," by uniting weak stocks, and, where practicable, utilising the comb by fitting it into bar-frame hives, or persuading the parties to preserve their combs for next year's swarms. Many of them appear not to be aware of the value of a hive of combs, and would sooner either convert them into wax, or, what is worse, allow them to remain on their stand through the winter, exposed to everything inimical to their future usefulness. I find the open driving most successful and expeditious, having in four cases driven two stocks, one after the other, into one hive. Wishing you every success with the *Journal* and your apiarian pursuits.'—C. W.

'Please send me a set of your *Crystal Palace Leaflets*. Bees are kept in great quantities about here, but they are all left to take their chance in hives about the size of one's hat, and never fed. In my neighbourhood (Blandford) it has been a very bad season, and the old system has produced nothing. On your plan, however, I have got 50 lbs. out of two hives, and have started a bar-frame, by transferring the empty comb and brood. This stock has been fed and looks strong and active.'—G. H. W. *Cambs.*

Maidstone, September 24th.—'From your remarks in the *Bee Journal* this month it would appear that the honey yield is very poor. On examining mine (ten hives) I do not think I am much worse off than I was last year, but I then complained of scarcity in this district; but at Hollingbourne the yield is not near what it was last year. Last week I took the bees from four skeps (at Hollingbourne), and put them in two Woodbury bar-frame hives. These bees were to have been "sulphured" had I not had them. My greatest difficulty has been a want of comb. I fortunately had a little by me, about sufficient to fill eight bars. These I divided between the two hives. I left them after the transfer for three days, and then brought them home. The people from whom I transferred some bees last year (also at Hollingbourne) would not let me have them this year—they will be destroyed! Would you believe it? A farmer at Detling told me I could have his bees if I liked to come and take them by a certain day; but I found it impossible for me to fall into his arrangement, and although I sent a bar-frame hive he would not wait, but destroyed them. I hardly know which to pity the most—the bees or their owner!'—J. T.

Weston, Leamington, October 16th.—'SECTIONALS.—If all is well I think I shall work chiefly sectionals another year, as I find they will sell anywhere. If I put anything between to make the bees build straight, I shall put the $\frac{5}{24}$ zinc instead of glass; then the bees can get from one to the other, and the heat will be more regular—at least, that is my opinion. . . .

'QUEEN-RAISING.—My plan of raising queens is,—I divide a hive into as many lots as I have queen-cells, in narrow boxes that will hold about three or four frames. I have a moveable dummy, or partition. Sometimes I have only one frame of bees, sometimes two or three. I just see that each separate lot has a queen-cell, or, if they have not, I give them one from any hives that are raising queens—Ligurians, of course, as I do not usually allow my darker bees to raise queens at all. I generally let them remain till they begin to breed before taking them away to put in other hives; sometimes I build them up into stocks, by giving them a frame or two at a time till I have filled the hive up, or put them in a larger hive. I think I have got about forty stocks now, or thereabouts, and all are in pretty good condition at present. I am half inclined to try and sell half of them in the spring, so that I may not have so many to look after.'—JOHN WALTON.

Huddersfield, October 16th.—'Bee-keepers about here have had fearfully bad times this season. The moors have yielded nothing. In one field, where 52 stands were placed, 21 were dead; in another I saw 8 dead, and stands on which a bee-keeper had had 14, 10 of which were dead; the remaining hives which showed signs of life were kept busy on their alighting-boards by crowds of robbers. I successfully drove (my first driving, the other day—thanks to the *Leaflets*) from a hive in which the combs were all gone mouldy in the lower half (which is the case with most skeps about here); in the upper I found about 5 lbs. of honey and 50 cells of brood, which, with the empty comb, I transferred to a bar-frame hive of your prize pattern. I drove, to-day, a queenless stock for one of my neighbours, but could only get about two-thirds of the bees to go up, and had to brush out the rest; in the upper part I found some sealed brood, all dead, and had evidently been so for some time. Is foul-brood a disease, or brood that has been neglected or chilled? The cells, when opened, did not smell foul. A few low down on the combs were sunk and dried up, where the bees had left them and gone up higher. Their owner is uniting them to a stock to-night: he says they will be all right. I suppose I should examine my own transferred stock in a few days, to see that the brood is all right, and would take the hive indoors to do it, if right. I saw some pollen-carriers on Saturday.'—E. W. L.

[Foul brood is a disease, of a highly infectious character.—ED.]

Crawley, October 19th.—'This autumn I have found a quantity of chilled brood in some of my hives, and not only mine, but in a great many skeps that I have transferred. In most cases it has been young bees, almost hatched out; but in some the grub has been chilled, which, in hives that are not looked after, must (? Ed.) turn to foul-brood. I lay it to the sudden and sharp frosts we have had lately, the bees having in no case endeavoured to throw out the dead brood.'—SAMUEL SIMMINS.

Blennerhasset, October 22nd.—'The queen was fine and lively when I set her at liberty amongst her new subjects, and was well received. We have had a very bad season here; not any honey to take; they are all at starvation-point. A great many have died for want. I hear of some having lost their stocks entirely. I have not lost one. I commenced to feed early, and to double weak stocks.'—JOHN HIND.

Queries and Replies.

QUERY No. 219.—*Ligurianizing.*—Would you kindly book an order for a swarm of bees, headed by a fertile Ligurian queen, such as you recommend in your leaflet on Ligurianizing, to be delivered as early in May as the weather will admit? Will you, also, kindly favour me with your opinion, in the next number of the *Bee Journal*, of the mode I am thinking of adopting? I have two stocks in skeps, which I have placed for wintering in two frame-hives, minus the frames. I propose driving No. 1, putting the bees into the frame-hive the skep now occupies, with, of course, the frames. Putting the Ligurians at once into the skep just emptied, placing them in the position of No. 2. Moving No. 2 to a distant station. A fortnight later driving both—putting the Ligurians into No. 2 and the blacks, minus their queen, into No. 1—changing the places of both hives, so that the bees have their old stations though in new hives; seven days later making artificial swarms from two or three other frame-hives, and giving the stocks queen-cells from the skep No. 1.

Water for Bees.—I should like, also, to know whether

it is necessary to give the bees water in the early spring, either in empty combs or in a sponge placed over the feed-hole?

The Quilt.—Also, whether the quilt which I have substituted for the crown-board affords sufficient upward ventilation?—points upon which Langstroth lays so much stress, possibly, I imagine, owing to the difference of climate. I may state that the super-cover has ventilating-holes back and front. The frames are covered with tick, two thicknesses of house-flannel, tick again, and three or four inches of hay upon it.—H. M. S.

Reply to Query No. 219.—The plan described above will not completely carry out the object in view from our standpoint, viz. the Ligurianizing of English stocks without danger to queen or bees, and with the minimum of trouble in the operation. The measures described in the Leaflet are the best we know of, and the proposal to place the skep No. I (just vacated by black bees, and populated with the small swarm of Ligurians newly obtained) in the place of skep No. 2, to increase its strength, &c., would probably be fatal to the Ligurian queen heading the said small swarm, and might cause much loss of life by fighting. The later proposals will be correct, provided there are drones in the vicinity.—Water is essential to bees, but they prefer it in a highly aerated condition. A small fountain in which the jet becomes spray, or a dropping fall where each drop is atomised by falling on a stone and splashing on to moss or ferns, is most agreeable to them. It is not wise to place water over their feed-hole in a sponge, as the water would become impregnated with the vapours of the hive, which should be allowed to pass away.—The quilt arrangement proposed is excellent.—Our small swarm system of Ligurianizing in spring, as per Leaflet, gains ground slowly, but it will assuredly be presently recognised as the safest, best, and cheapest for amateurs.—Ed.

Query No. 220.—What is the best form in which to administer barley-sugar in winter feeding, and also in what manner—by slipping it in under the quilt, or by a bottle over the hive?—T. H., *Belvedere, Kent.*

Reply to Query No. 220.—Barley-sugar such as is proper for bees readily deliquesces when exposed to the moist vapours of the hive, and if this occurs when the weather is too cold to permit of the bees working—*i. e.* feeding—upon it, it will liquefy and run down into the hive, doing much mischief. Feeding in winter is a bad practice, and ought never to be necessary; but where it must be had recourse to, it is best to give it to the bees in small quantities, and as often as they are without it, by dropping it between the combs. When they are fully active a small pile may be made in and above the feed-hole at top of hive, where a flower-pot over it will protect it from robbers. A bit of perforated zinc over the hole in the bottom of the flower-pot will add to the security and will permit of continuous ventilation, which is highly essential.—Ed.

Query No. 221.—*Directions for Bee-keeping.*—A Lady Bee-keeper will feel obliged by Messrs. Abbott sending her directions for bee-keeping. She is anxious to commence a bee-farm, and would be glad of any hints as to laying out the ground, aspect, &c., &c., and as to number of stocks that will secure a profit sufficient to cover the expense of hired assistance during the swarming season and honey harvest. The querist has ten acres of land in garden and orchard. The country is to a large extent in hops, but there are a great number of lime-trees in the neighbourhood. The lady has kept bees for some years on a small scale, but is now desirous of turning into account the knowledge she has acquired.—*Canterbury.*

Reply to Query No. 221.—The best directions for the cultivation of bees will be found, from time to time, in the pages of the *British Bee Journal.* Prior to its existence, Langstroth on the *Hive and Honey-bee* and Quinby's *Mysteries of Bee-keeping Explained* were the only works worth reading; and since, there has not been a work published on the subject which has not owed its existence to the first-named. This may be denied, but cannot be refuted, and we cannot help asserting, with all due modesty, that—subject to the delightful influence of Langstroth, and the late deservedly-lamented Quinby—the *British Bee Journal is* the '*fons et origo*' from which has been drawn the knowledge which has raised the science of bee-keeping in England from the slough of despond, and the pit of Satanic odour, to the proud position which it now occupies; for we claim that Great Britain is second to none for advancement in bee-culture, though it may, save in some instances, lack the flowery wilds and wastes (?) that make its cultivation *most* profitable. Lacking these, yet delighting in the pursuit, the custom here is to eke out nature's limited supply of honey-yielding flowers by planting and sowing the seeds of such shrubs and flowers as may be depended on to produce their supplies in the intervals between the sources of general supply inherent to each particular locality. Lime-trees, it appears, form the staple of supply at Canterbury; but they, as a rule, yield only in July, and although there must, in a garden and orchard of ten acres, be other sources whence the bees can gather honey, it would be well to treat them to a few specialities that can always be relied on. First, we would put in a few thousand crocuses, in patches of about six each, or as bordering, in rows, the bulbs to be about three inches apart; and if not removed they will, in about two years, make a heavy line of golden or coloured beauty, according to the quality of the bulbs. Next in succession should be a heavy crop of wallflowers. Twenty rods of well-prepared ground covered with the plants a foot apart will make a blaze of colour that will delight the senses with its beauty and fragrance, and it will be a great pleasure to see and hear the bees at work upon it. Half an acre of mustard, to follow, will give the bees—if not too numerous—another chance, and will, weather permitting, enable them to prepare for the harvest on the limes. If the orchard be grass-covered, a few pounds of Dutch clover seed should be sown in it, which should be allowed to blossom before being cut or consumed, and its second crop should be carefully preserved till the bees had rifled it. Phacelia is an excellent intermediate, and borage (the king of bee-plants) may be liberally sown, and will bloom anywhere, and both will yield abundantly. These, with the usual fruit and vegetable blossoms, will give a fair prospect for a few stocks, and a liberal margin of profit to their owner, subject, of course, to climatic conditions over which humans have no control; but in every situation additional results will be obtained by painstaking observance, and watching and providing for the intervals peculiar to every locality.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Colyton (*Axminster*).—The 'oft-told tale' will be found on page 95 of the *Journal* for last month, at the top of right-hand column.

Doncaster.—Keeping a bottle of barley-sugar always on the hive is attended with dangers which are pointed out in reply to Query No. 220. It being now too late for stimulative feeding with a view to breeding, a bottle containing half a pint of food may be put on every mild evening, the bees having full access to it through several holes in the feeding-plate.

Micheldever (*Hants.*)—Considering the poorness of the season we should be satisfied with the profit ('an immense swarm') from the box-hive, and, as it has fortified itself for the winter, should 'let well alone,' saving the care necessary in all cases.

A Lady Correspondent (*Memphis, Tenn., U.S.A.*)—We shall be most happy to receive an account of your experience with bees, which we are sure will be interesting. The August number has been again forwarded.

The British Bee Journal,

AND BEE-KEEPER'S ADVISER.

The British Bee Journal is published monthly, and contains the best practical information for the time being, showing what to do, and when and how to do it.

Subscribers to the Journal are first, second, and third class. First class are those who subscribe 10*s.* 6*d.* per annum, from any date, who are entitled to immediate replies, per post, to their queries, when a stamped directed envelope is sent. Second class are those who subscribe 6*s.* per annum, and whose queries can only be replied to through the columns of the Journal; and Third are Clubs of Cottagers, each consisting of not less than six, to whom the charge will be 4*s.* 6*d.* each Member.

Subscriptions, Correspondence, and Inquiries to be addressed to

C. N. ABBOTT, Bee Master,

School of Apiculture, Fairlawn, Southall, London.

SCOTLAND.

R. STEELE, Hive Maker, Fowlis by Dundee, Winner of Twenty Prizes in 1877, at Edinburgh, Dundee, Carlisle, and Blairgowrie, is prepared to supply his PRIZE BAR-FRAME HIVES at from 4*s.* to 26*s.* FIRST PRIZE, ALL METAL, HONEY EXTRACTOR, 25*s.* and 27*s.* 6*d.* Machine-made Comb Foundation, 5*s.* per lb. Supers, Feeders, Smokers, Vulcanite, Perforated Zinc, Honey Knives, &c. &c.

Illustrated Catalogue in preparation. fo. 10

BEE-HIVES.—PETTITT'S METAL RACK BAR-FRAME HIVES.—LIGURIAN BEES of the purest race. Imported QUEENS, SWARMS, and STOCKS. English Stocks or Swarms. See Illustrated Catalogue, post free, 3*d.* Please address W. J. Pettitt, Apicultural Institute, Dover. fo. 33.

HIVES.

THE IMPROVED IFIELD BEE HIVE, having Three Glass Windows, with Shutters. Price, complete, on legs, with Supers and Cover, 45*s.* See *B. B. Journal* for July. Made and sold only by the Inventor, R. C. Blaker, Ifield Vicarage, Crawley, Sussex. fo. 8.

RIMMELL'S SPRAY DIFFUSER.—For Spraying Combs. Can be used either with Syrup, Scents, or Disinfectants. Post free, 1*s.* 6*d.* Safely packed in a rocket case.

Office of *British Bee Journal*, Fairlawn, Southall.

A NEW BEE HIVE.

THE DIVISIONAL HIVE.—Price complete, on legs, with super and cover, 40*s.* See *B. B. Journal* for September. Made and sold only by the Inventor, S. Simmins, Crawley, Sussex. fo. 56.

LEAFLETS FOR THE MILLION.

The List now comprises—

No. 1. Transferring.	No. 4. Driving.
„ 2. Feeding.	„ 5. Hiving in Bar-frame Hives.
„ 3. Ligurianising.	„ 6. Making Artificial Swarms.

N.B.—These cannot in future be sent out in packets of less than Twelve (assorted or otherwise), for which Sixpence in stamps must he sent.

Each Leaflet is well worth twelve times the price charged.

C. N. ABBOTT, Fairlawn, Southall.

SEVERAL HIVES of BEES for Sale in Woodbury Bar-frame Hives. J. Torry, Fern Cottage, Lower Fant Road, Maidstone.

WANTED, back Numbers of the *Bee Journal* for 1873, '74, '75, '76, bound or unbound, in good condition. Address, stating price, to Hy. H. Beakbane, Warrington.

TWO FIRST PRIZES and CERTIFICATES.

ABBOTT'S ECCENTRIC EXTRACTOR, 'THE LITTLE WONDER,' has been exhibited at the West of England Apiarian Society's Show, at Weston-super-Mare, and at the Devon and Exeter Bee-keepers' Association's Show at Exeter, and elsewhere, and on each occasion it was awarded the First Prize and Certificate, and was pronounced A MARVEL OF SIMPLICITY. For portability it is unexampled; the large size, to take frames 20 inches by 12, weighing only 8 lbs., and it is so simple in construction that it cannot get out of order. Price 15*s.* and 17*s.*, of the Inventor, C. N. Abbott, Editor of *British Bee Journal*, School of Apiculture, Fairlawn, Southall.

ABBOTT'S HONEY KNIVES.

Best Elastic Steel, 3*s.* each, 5*s.* 6*d.* per pair, post free of

GEO. NEIGHBOUR & SONS, 149 Regent Street,

or at the Office of the British Bee Journal, School of Apiculture, Fairlawn, Southall.

The 'British Bee-keeper's' Microscope.

A useful and popular Instrument, well adapted for all Microscopic purposes.

It consists of a firm Stand, with Brass Uprights, coarse and fine Adjustments to the Body; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; Stand Condenser for opaque objects; Diaphragm; Life-box; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £3 10*s.*

Brass Stand Microscope, of similar construction to the above, two Eye-pieces of different powers; ¼-inch Achromatic Object Glass, dividing to ½ and 1-inch; also a 1-inch wide Angle Object Glass, for large objects; Stand Condenser; Diaphragm; Stage and Dissecting Forceps. Complete, in Mahogany Cabinet, £4 4*s.*

Binocular Bodies, with Rack Adjustments, adapted to the above, extra.

Polariscope, and other apparatus, can also he fitted.

J. W. Deacon, Optician, High Street, Sydenham.

DR. PINE'S BEE-KEEPERS' LOTION.

This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

Testimonial.—'Your Bee Lotion has certainly a wonderful effect in allaying the pain and swelling resulting from Bee-Stings. I have applied it to many persons during the past season with the greatest success.'—Obed Poole, Hon. Sec. West of England Apiarian Society, Uphill, Weston-super-Mare. Feb. 13th, 1877.

Price 1s. 6d. per Bottle, or Post-free for 1s. 8d.

Agent—

Mr. C. N. ABBOTT, Editor of *B. B. Journal*, Fairlawn, Southall.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 56. Vol. V.] DECEMBER, 1877. [Published Monthly.]

Editorial, Notices, &c.

DECEMBER.

During the present month the apiary should be in a state of rest, and ought to require no attention beyond that necessary in keeping the bees dry and well protected, and in preventing the choking of the narrowed entrances of their hives with snow from without, or dead bees or débris from within them.

There may, however, be some who, from pressure of other business, have neglected their bees, and feeding may be necessary to enable them to stand against the wintry weather now due, and such bee-keepers require a caution against feeding inordinately with liquid food. All feeding ought to have been over long since, for feeding-time in its implied sense of *preparing* for winter has long passed, and whatever is now given to bees can only be rightly considered as intended to eke out their scanty stores to enable them to tide over the three winter months now commencing. We receive many complaints from bee-keepers who have allowed the true feeding-time to pass, that their bees, though weak in both numbers and stores, will not take the food offered to them; but they forget that in cold weather it is impossible for them to do so, unless the food be warm when administered; and in that case only small quantities should be given at a time, or it will become cold when in the hive, and will do mischief by absorbing heat from the bees who are already insufficient to maintain that necessary for life and health. Warm nights can scarcely be expected at the present time, but genial days will occasionally intervene, when a little warm liquid food may be administered to such as show any signs of dysentery, to stimulate them to take wing and discharge themselves; but great care should be exercised that robbing be not promoted, and for that purpose the feeding bottles should be covered closely and the entrances properly guarded. At other times, an ounce or two of barley-sugar should be kept on the feeding-zinc and closely covered with dry flannel, that the bees may get it as it becomes liquid without the loss of heat from their cluster.

FERTILE WORKERS: WHENCE COME THEY?

The general opinion regarding the production of fertile workers is, that they are bees which have been hatched in cells into which by accident some portion of royal jelly intended for an adjacent queen-cell had been dropped, and which so far stimulated the growth of the larva as to develope its ovaries and enable it when mature to deposit eggs. Now, this theory is, in our opinion, untenable, because bees do not carry royal jelly about like mortar in a hod, which may drop accidentally 'anywhere,' but it is manufactured in their stomachs, and is discharged by the mouth into the cells intended to receive it, and bees are scarcely likely to make mistakes in such matters. Besides, fertile workers sometimes crop up in winter, when queens die and there is no brood from which to raise others, so such combination could not occur in that case. Whence, then, come they? Is it not possible that their pernicious development may arise from themselves partaking of royal jelly? Most advanced bee-keepers know that when queen-cells are destroyed either by the bees or their owners, the bees lick up the royal jelly, and it may happen that some young bees may partake of it, and be liable to the change implied; or, being nurses, they may mix it with the food administered to others, and effect the change in them. In the case of their production in winter, when there is no brood, may not the desire to produce queens induce the bees to provide royal jelly, which, having no brood to bestow it upon, they themselves eat and become fruitful? We offer these suggestions with due modesty for the consideration of advanced bee-keeping microscopists, as it can be proved next year at the latest if the royal food will affect the living bees that partake of it, though it may not be so easy to determine the question in regard to the larva fed as described. There is one other feature in the economy of a hive that our suggestion may bear upon, viz., the regicidal tendencies which occasionally arise in a hive, and it is possible that the hint as to the feeding of the larvæ may suggest a principle on which a theory may be founded, viz., that queen-cells having been

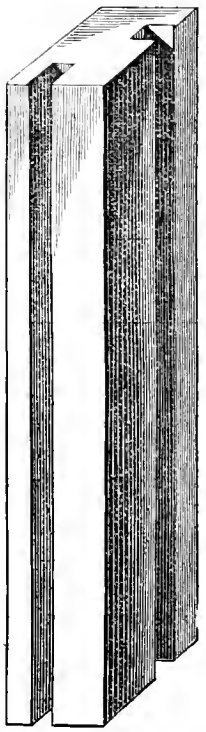
formed, and, as usual, being of all ages consistent with the time necessary for the development of the expected queen, whether the early hatching of some, and the destruction of others, may not in the natural economy of the hive cause some larvæ to be fed with food of royal tinge as suggested, and which may so change their nature that when born into the world they inherit sufficient of the jealousy of a queen for her rival to induce them to become regicides?

When on the track, one can readily glimpse over scenes and experiences that fortify the theory, and almost enforce a verdict in its favour. On introducing a queen, how often do we find queen-cells formed while her majesty is encaged, which we simply crush, leaving the bees to clear up the food and the débris. We release our queen, and for a few days all goes well, when suddenly the queen is lost, departed, dead, and we are left to wonder why? In preparation for natural swarming royal jelly is abundant, and queen-cells numerous; the weather, however, renders swarming impossible, queen-cells are destroyed, and soon after the queen disappears, a fact usually attributed to the anger of the bees at their disappointment; and how often in such cases have fertile workers gained eventual possession of the hive? How often when supering and to prevent swarming has the destruction of queen-cells been followed by the loss of the queen and the presence of the fertile pests? We strongly incline to the notion that our theory will account for many of the vagaries which arise in the life of queens and princesses, and their half-sisters the fertile workers, and we hope our friends will give us their aid in investigating the matter.

DYSENTERY.

In our last former number dysentery was a subject occupying a short space, and those who read will readily understand the nature of the disease, and we now propose to notice the best means of treatment. We pointed out that through an unhealthy condition of the hive the bees became in a state of distension, as it were, from pent-up mucus of diarrhœaic character, which they cannot discharge except when on the wing; and it therefore becomes apparent that in bad weather this state of things can only be remedied by preparing artificially, firstly, a means by which the necessary flight may be obtained; and, secondly, by removing the cause or causes of the disease.

The means of giving a flight are very simple. Procure four lengths of wood from four to six inches long, with grooves cut into them, as indicated in the engraving; take a piece of board, any size, and nail one of the pieces of wood to each corner, as if making a four-legged stool, but take care that the grooves in the legs (?) are on their inner sides. Turn over the stool (?) and slide glass slips into the grooves, thus forming a glass-sided box, like an ancient Woodbury Super. Prepare a board of sufficient size to receive your hive, having a large hole in the centre, and fix it to the upper end of the grooved pieces, and it will be ready for the hive, minus its floor-board, to be placed upon it. The intention is, that the hive shall, when on the glass-sided box, be taken to a well-heated room, in presence of bright light, and there caused to fly within the box. Previously, however, the box should be partly filled with an absorbing and disinfecting medium, a mixture of sawdust and chloralum, or simple well-dried earth, would do; and there should be a ladder or two tacked to the inner side of the hole in the top board (strips of perforated zinc will do), and reaching to the bottom of the box, to enable weakly bees to reach their hive again.



By the use of this method, a hive in the dead of deep winter weather may get an airing flight that will save it if not overladen with disease. It will give the bees opportunities of flight, of throwing down their dead, and of receiving fresh food, which should in such cases always be given, and it will help to dry out the hive, and thus hinder the recurrence of the evil.

There is no modern English work extant which fairly grapples with this insidious and destructive disease. A few lines are all that are devoted to it, and the bee-keeper is told that the remedy is fresh food and exchange of combs, if possible; but no directions, save in this *Journal*, have ever been given how these objects are to be effected. Fresh food is impossible to bees already in a distended condition, and exchanging combs is not a handy work in depth of winter with bursting bees tumbling about in all directions. Such bees cannot be driven up out of a dysenteric hive, but—if the attempt were made—would fall into the crown amongst the honey-store, rendering it more filthy; so we think it much better to coax them down, where they may obtain relief, and the other benefits enumerated, after which the combs may be treated according to their condition.

As is fairly well known amongst bee-keepers, the combs in an ordinary skep are not moveable in an understood sense; and consequently the difficulty in transferring or exchanging them is greater than when they are in bar-frame hives, where every comb is (or ought to be) interchangeable with every other of the same kind. Bees in skeps, therefore, when afflicted with the disease in question, must, if change of combs be necessary, be driven from their own, and reinstated in another set of combs, a process that may either take place in a well-warmed and darkened room, or on a fine day in the open air, but should not be attempted until one or two purifying flights have been given as before directed. With bar-frame hives it will only be necessary to place the hive on the glazed box, the latter being well illuminated, the whole being in a warm and darkened room, when the bees will be attracted to the glazed box, and combs may be exchanged almost without a bee escaping.

Much good may, however, be done by placing the hive and glazed box in a hot, dark room where the moisture will dry out without the bees feeling imprisoned, imprisonment while active being one of the bugbears of bee life. The best thing, however, is prevention of the disease altogether, by following the directions given in early autumn in this *Journal*.

REMOVING BEES.

Dysentery is often brought on by removing stocks in cold weather, the jolting on railways and vehicles causing the bees to gorge and create great heat, while the length of their confinement, and their endeavours to escape cause them to become too tired to redeposit what they have taken into their stomachs, hence they become overcharged and the disease is set up. In such cases a flight in a hot room in a well-lighted box is generally sufficient to cure them. In cold winter weather bees should not be removed to greater distances than they can be carried by hand, and great care should be exercised that they be not jolted or disturbed. It is by many supposed that during winter the bees are dormant, and can be removed with impunity; and this is true, if they are moved without their knowing it, *i.e.*, without jar or jolt; but most bee-keepers are aware that a tap on the hive's side will cause a buzz, and a repetition of it a roar, followed by the appearance of bees at the entrance, so that it is easy to imagine the effect of a journey by rail or road, where jolting and jarring are the rule.

Bees should always be removed in fine weather, lest, when placed upon their stands and set at liberty, many fly abroad and get lost.

We lately removed a number of stocks from Hampshire; the day was fine and mild; a little smoke to each drove the bees up into the combs, and in five minutes every hive was lifted from its floor-board, the bees, if any, brushed from the latter, and a square of cheese cloth laid upon it, upon which the hives were then placed. Half-an-hour afterwards the corners of each square of cheese cloth were fixed to the hive crown by tin tacks, and a string was tied round about the third ring above the entrance of each skep. The next process was 'packing for travelling,' the former having simply secured the bees, and this meant not only the prevention of injury from rolling about on their 50 miles journey, but the providing of convenience for their handling by railway porters, who, as a rule, have little regard for tender combs, and are only too glad to dispose of luggage in the quickest possible way.

To effect this object, the flat-topped hives were inverted and set on large square cloths, which were tied at the corners, so that each hive could be safely carried. Round-topped ones being liable to roll about, were more carefully prepared; several yards of hay-band were made into a thick ring of about fifteen inches diameter, which being put upon the cloth, the round top of the hive was set in it, and the cloth being securely tied over the whole, kept it upright and comfortable as if on a cushion, and the whole came home safely. The night, however, was bitterly cold, and, having removed the outer cloth, the hives were set on their stands, and the bees not let out until some hours after, when barely a dozen cared to crawl out; and the cheese-cloths, which were still under the hives, were not removed until the next evening, when every bee, save the few thrown out dead, was snugly ensconced amongst the combs, and with one exception there has been no sign of dysentery.

ASTON'S NEW FEEDER.

This is an improvement on the old method of feeding, as it is impossible for the outside bees to get at the food. It consists of a tin somewhat like a lobster-can, with a tube running along its under side, which tube has sundry perforations in its lowest side and a cork in one end, the other end being in communication with the can or reservoir. One side of the can has a slip of glass inserted, so that the food can be seen. When filled, it is inverted into a groove in a block of wood which stands over the feeding-hole, and in the bottom of the block is a narrow slit, through which the bees can suck the food from as many holes as are offered to them by the bee-master. It is ingenious, and, we think, will be effective. Its price varies from 2*s*. upwards, according to size.

FOREIGN BEE JOURNALS.

We, with great reluctance, beg to withdraw the offers hitherto governing our exchanges.

The difficulties of postage, the losses thereupon, the uncertainty of delivery, and the small remuneration received, preclude the possibility of a continuance of the present system (?). Our exchanges have been based on the *lowest* scale, yet our American brothers have charged the *highest*, which we take leave to think unfair, and, in accordance with that view, we offer to American bee-keepers 'our *Journal*' at six shillings, or one and a half dollars, per year or per volume, and decline future agencies, or what is mixed up in the word 'clubbing.' Those foreigners who wish to receive our *Journal* will please communicate directly with us, viz., to Abbott Brothers, Fairlawn, Southall, Middlesex, England.

NATURAL HISTORY SOCIETY OF GLASGOW.

The second meeting of the session was held on Tuesday evening in the Library of Anderson's University, Professor John Young, M.D., F.R.S.E., President, in the chair.

A paper was read by Mr. R. J. Bennett, entitled 'Apiarian Notes for 1877.' In this paper Mr. Bennett gave a detailed statement of his observations on, and treatment of, his apiary in Argyllshire during the present year. In January and February, notwithstanding the heavy rains which prevailed, the temperature was mild, and the bees were stimulated to activity when they should have been in a torpid state, causing great destruction to the workers and depopulating many hives. March, always a trying month, was this year attended with considerable difficulty, and during its continuance, as well as in April, liberal and stimulating feeding had to be adopted to keep the stocks in existence. May opened well, and gave hopes that the season was yet to be a good one, but the cold east winds which set in early and continued to the end of the month dispersed all these hopes. June, which is the great swarming month, began with fine weather, and again excited the hopes of beekeepers that the season was to be a productive one; but as July came in the weather was dull, cold, and rainy, and many of the stocks would have suffered had they not been fedc ontrary to all former experience. August, we trusted, would redeem the disasters of the past months and enable the bees to make up for lost time, proved no better than July; and honey shows, both here and in England, were abandoned, the usual supply of food having miserably failed. In September, which is the usual Scottish honey harvest month, the half of the bees in the country were in a starving condition, and instead of the usual cry—What are we to do with our honey? it was, How are we to preserve our bees? During this month and October artificial feeding has had to be resorted to, and the result has been that this year has proved the most disastrous to beekeepers since 1862. At the close of his paper, Mr. Bennett presented to the library of the Society a beautifully-written letter he had received from Miss Clementina Stirling Graham, of Duntrune, the last representative of Claverhouse, written in bed shortly before death, in her 95th year. Miss Graham was probably the oldest beekeeper known, having taken an interest in the culture of honey for three-quarters of a century, and this document, amongst the last of her correspondence, he thought worthy of preservation.—*North British Daily Mail.*

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

Last Meeting of the Session 1877.—Minutes of Meeting held in McInnes' Temperance Hotel, Hutchison Street, Glasgow, Nov. 14, 1877.—*Present:* Messrs. Sword, Wilkie, Thomson, Young, Kinloch, Armstrong, Bailie Laughlan, Bennett, and Wilkie of Kilmarnock. Bailie Laughlan was called to the chair. The minutes of last meeting were read and approved of. Letters of apology were read from Messrs. Paterson and others for being unable to attend. Mr. Bennett read the financial statement for the year, and regretted that the September show had to be abandoned, and on that account supposed many of the subscriptions were withheld. Mr. Fox Kenworthy's letters were read, both as regards the medals kindly offered for competition, and as to taking a part in the Paris Show. He had written to Fox Kenworthy for particulars regarding the latter, and when the arrangements are complete, had no doubt would find them satisfactory. After some discussion, it was agreed to wait the reply to Mr. Bennett's letter from Colonel Campbell, the President of the Society. Mr. Bennett had inspected the new halls, and was glad to say they were very suitable for holding Autumn shows in, and arrangements could now be made for exhibiting Observatory hives, &c. Then Mr. Wilkie proposed that a deputation should wait upon all the outlying districts of the Society, such as Ayr, Kilmarnock, Perth, Stirling, Alloa, and Lanark, previous to our March meeting, to see the state of the apiaries, to stimulate and strengthen those who were apt to get disheartened after such a terribly bad season, and also plead the cause of one National Bee Association with four quarterly meetings, to which the various districts should send a representative, and thus the whole country would be posted up in the latest improvements. The motion was approved of, and a committee was appointed to report on the subject at next meeting. Mr. Bennett exhibited Mr. Alfred Neighbour's new book, entitled *The Apiary*, and said it would be found a most excellent work, and should be added to the library of all apiarians. A vote of thanks to Bailie Laughlan for presiding brought the meeting to a close.

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris. Berger, Levrault & Co. 1875.

(*Continued from page* 120.)

It appears nearly certain that bees never go to a greater distance than two miles, or thereabouts, from home for the purpose of collecting honey. If you remove a hive three miles from its apiary, none of the bees will be found to return next day; if, on the other hand, it be removed to a distance of only a mile and a half, several bees will be found to come back to their old home. It often happens, too, that two sets of hives, which are hardly more than a mile apart, yield a crop of honey which differs essentially in quality. This proves beyond doubt that there are certain flowers at the disposition of one set of bees which are out of the reach of the others, and that the ordinary range of the bees cannot exceed a mile and a half, or thereabouts.

The German authorities, though generally in accord with the French on this question, give a somewhat greater extent to the bees' range, and believe that in times of scarcity bees forage at a distance of three, and even four miles from their hives. They recognise, however, that any such distant foraging can be of but little practical use.

The duration of the life of the Working-bee.—The author is disposed to think that few bees reach the full term of their natural life, and that most hives are renewed entirely, at least, three or four times during the

year. The enormous amount of young stock which a strong hive rears between spring and autumn is a very convincing evidence on this point, especially when it is remembered that three weeks suffice for the eggs to be hatched out, and the cells to be refilled again with a fresh set.

In summer a hive where this renewing process is not going on will lose three-fourths of its population in the course of two months, as any one who watches it may easily convince himself; even though at the time that it lost its queen, it was full of young brood in every stage.

As regards the production of stock in winter the author gave a Ligurian queen to an orphan hive of common bees on 26th of September, 1862, and on the 11th of April following there was not one single black bee remaining in the hive. The whole of the common species had been replaced by an equally strong colony of yellow bees. It is probable, then, that a hive renews its population once during the winter months; and twice, or even thrice, during the summer (1). The working-bees are continually exposed to innumerable dangers from birds and insects while they are out foraging. Numbers of them, too, are overtaken when far from their homes by wind, cold, storms, and rain; many, too, wear out or break their wings, and are never able to reach their hives again, charged as they are with honey and pollen, and thus fall victims to the performance of their duty. In the month of July numbers of bees with mutilated wings may be seen about every hive, while in September not one will be observed in that condition, all such having either died in the fields or having been expelled from the community.

Fertile Workers.—Riem, an officer in the service of the King of Saxony, was the first to discover towards the end of the last century the existence of fertile workers. Huber, following up the discovery with fresh experiments, proved its exactness. The fertile worker has all the characteristics of the ordinary bee; the same little pockets on the hind-legs, the same long trunk, and the same straight sting: in fact, it is impossible to discover any difference between them. The fertile worker, however, never lays the eggs of common bees, but only the eggs of drones; and when young drones are found during the latter part of the season in a hive which has lost its queen after swarming, they are the produce of eggs laid by fertile workers (2). The fertile worker lays without being fertilised, or, at all events, does not require to be fertilised in order to lay, in the same way as the queen can lay drone eggs without the necessity of fertilisation. Some suppose that fertile workers lay but few eggs, and do but little harm in consequence; but it may be assumed that if this is the case it is because they are for the most part found only in weak hives; and that, as under ordinary circumstances in a hive, the number of young brood is subordinated to the number of nurses and to the means of rearing it.

Fertile workers are produced in the cells which are in immediate contact with the royal cells, and it may be supposed that the larvæ, or grubs, are reared on pap that has been tainted with some portion of the royal pap prepared for the young queens, and which may be distinguished from that prepared for the ordinary bees by a somewhat sharp flavour which it possesses; and that it is to this special nourishment that they owe the fertile powers with which they are endowed (3).

The real queens have the same aversion for the fertile workers as they have for their proper rivals, and they will throw themselves on them, and massacre them at once, unresisted (4), wherever they meet them; and fertile workers cannot exist for an instant in any hive where there exists a queen already. But among themselves the fertile workers are far more sociable, and it is by no means rare to find several of them in one hive (5). If six weeks or two months after swarming you find in a hive the young of drones only without any ordinary young brood, you may be pretty sure that there are fertile workers busy in the hive, and that it does not possess a queen (6).

Where fertile workers exist in a hive, the bees are unable or unwilling to provide a queen for themselves, and they will never allow a fertile queen to be forced upon them (7). This seems to show that the bees are endowed with a sort of affection for these useless stepmothers, which makes them unaware or forgetful of the misfortune under which they labour.

Fertile workers differ from drone-laying queens in that the former lay their eggs only in drones' cells (8), whereas drone-laying queens lay them by preference in the common cells: only laying in the drones' cells when none of the ordinary cells are unoccupied. The author has only met once in a long experience with a fertile worker which laid eggs in ordinary cells.

Fertile workers lay their eggs occasionally in the royal cells (9); but the young produced from these eggs are never

Editorial Notes.

(1.) Experiments many times repeated have proved that during the height of the busy season when, as it were, all hands are engaged, the average duration of life of the workers is about six weeks. Three weeks after a Ligurian queen has been introduced to a black colony, the black brood will have hatched out of the cells, and the young Ligurians will be approaching maturity, and, as a rule, it will be found that in six weeks from that time the black element will have departed, and the hive will contain Ligurian bees only.

(2.) This statement is not strictly correct, for generally normal drones are tolerated in hives that have lost their queens at swarming time, until they perish naturally. In fact, such hives become refuges for drones ejected from other hives, and we have found them of all shades of colour, from the yellowest Ligurian to the blackest native in native hives.

(3.) This theory, though generally accepted as a reasonable solution of the phenomenon, will not hold water in the presence of the fact that fertile workers may occasionally be found in hives in which no queen-cells have ever been raised. Often, in late autumn, we have had occasion to introduce Ligurian queens to broodless stocks, when queen-raising was impossible, and in numerous cases, extending over a period of several years, our failures have been followed by the fertile plagues, and the hives ruined.

(4.) This must be taken with a grain of salt. In our experience queens have been introduced into colonies from which it was hoped the fertile pests had been expelled, and although apparently well received by the workers, and been seen again after the closing of the hive, they have fallen victims to the more lithe and active 'pest,' with its straighter, sharper sting.

(5.) We should be glad if the venerable Abbé would tell how he has repeatedly found several fertile workers in one hive.

(6.) A stock in such condition might possess an unfertile queen.

(7.) This is very wide of the mark. As we pointed out in a former note, the workers would accept a queen, but the fertile pests destroy them. Again, the bees make strenuous attempts to raise queens from the drone eggs of the fertile worker, but are of course unable to change their sex, consequently, although fed upon royal jelly, success never attends their efforts, but the drone dies, apparently of over-feeding. The bees have undoubtedly a similar affection for a fertile worker as for an unfertile queen.

(8.) Fertile workers appear to lay their eggs in any cells to which they can reach the bottom, and they seem so fond of the amusement that they frequently lay six or seven or more eggs in individual cells. We have many times found fertile worker progeny in worker cells, in which case the bees elongate the cells to give more room, but the drones that issue are invariably stunted, and, as is supposed, useless. They sometimes enlarge a cell in which several eggs have hatched, and making a huge one which might easily be mistaken for a queen-cell, but which will contain drones only.

(9.) This is a misapprehension. Eggs are not laid *in* royal cells, either by a queen or a fertile worker.

permitted to come to maturity. The bees commence to nourish the larvæ, and even close them up at the proper time; but they never fail to destroy them within three days after having closed the cells. Thus an inexperienced hand may be deceived as to the state of his hive, imagining that he has young queens all right in the shape of chrysalis, when he really has none. It may be accepted as a fundamental rule where there is only male young brood in a hive, that it is impossible for young queens to exist in the cells.

Drones live at their ease in a hive where there are fertile workers, just as they do in a hive where there is a queen who only lays drones' eggs. They are are not driven out or destroyed from either.

(*To be continued.*)

SPECIAL SENSES OF THE BEE.

The monthly meeting of the members of the Croydon Microscopical Club, held on Wednesday evening, Oct. 17, at the Public Hall, Dr. Carpenter presiding, Dr. Beeby read his paper on the above subject.

The lecturer having given at length a survey of the general anatomy of the bee, took up the vexed question of its special senses:—"First, does the bee hear? Has it an auditory apparatus? No such mechanism has been demonstrated for a certainty, and Sir John Lubbock has made various experiments, and tells us that he cannot make the insect pay attention to sound. I also have tried by different methods to elicit evidence concerning a sense of hearing, but to no purpose: in consequence of which I was at first inclined to think that none existed, believing that the bee was endowed with a very acute power of perceiving vibrations through the ordinary nerves, but that it had none specially adapted to the appreciation of sound. I am now disposed, however, to consider this negative evidence insufficient, and that for various reasons. In the first place, the insect may not pay attention to sounds of our making, yet may notice other sounds which come particularly within the scope of its instinct. The limited cerebral development, if I may use the term with reference to their nervous ganglia, possibly admits of the appreciation of no other than sounds of their own making, the capability of hearing and comprehending which would be evolved and fixed by long hereditary transmission. I should imagine that the power of distinguishing many different sounds required a higher nervous development than either of the other senses; and I believe that even with ourselves, certain persons are able to hear very high-pitched notes, quite indiscernible to many whose auditory apparatus is otherwise perfect. Thus our failure to elicit direct evidence of any power of hearing possessed by them may depend rather upon their internal nerve development than upon a deficiency in internal apparatus. In the second place, we know that insects do emit sounds characteristic of their feelings. No less an observer than John Hunter remarked that though the wings of bees are cut off and their legs held fast, they can still give rise to a shrill, peevish noise. Moreover, the young queen, before leading off a swarm, makes a piping noise. It seems at least improbable that such would be the case if the insects themselves were incapable of hearing such sounds. As they do not use their mouth for respiration, they cannot, of course, be said to possess a voice, but authors have described muscles which regulate the orifice of their spiracles, and some have mentioned valves connected therewith which vibrate; hence they may emit various degrees of sound at will. In the third place, we have the positive evidence of certain sense organs, which may very well be supposed to constitute an auditory apparatus. The antennæ have long ago been suggested as answering such a purpose, but it remained for Brereton Hicks to point out their anatomical character. He describes them as presenting to view round spots, which are depressions on the surface, with a very thin membrane closing their perforations, which contain fluid, and are supplied with branches of nerves. Their physiological structure is similar to that of the reputed auditory organs at the base of the antennules of the crustaceæ. Therefore we incline to the opinion that bees do hear through the instrumentality of an auditory apparatus, which probably is seated in the sacculi of the antennæ, but that their power of appreciating sounds is very limited owing to their want of true cerebral development. Dr. Hicks describes other very important sense organs situated on the wings of bees. The wings of insects have often been supposed to be particularly sensitive, actuating them in their choice of direction in flight. They are freely supplied with hairs, as is the whole body, and on certain parts there are also hair-like projections of variable length, arising from vesicles or papillæ. It is probable that all these, and especially the latter, are sensitive, and available as instruments of touch. It has been suggested that the vesicles or tubes, which are more plainly seen in the diptera, but yet are present in the hymenoptera, constitute organs of smell. We are accustomed to find olfactory organs connected with the respiratory system in the vertebrata, it being essential that air should pass freely over membranes supplied with special nerve; now the wings of insects are considered as far as structure goes to be essentially the same as that of the expanded gills of aquatic larvæ: each consisting of a prolongation of the superficial covering of the body over a system of rarefying nerves or ribs, which are principally composed of tracheæ in connexion with those of the interior of the fabric: thus their wings are intricately connected with the respiratory system, and we should not be surprised to find the olfactory orifices of the bee in such a situation. Fleming and the elder Darwin thought that in insects the appreciation of heat depended upon a special sense. It is possible that these vesicles on the wings, besides olfactory senses, may be endowed with senses of ordinary sensation, highly developed, and particularly alive to the influence of heat and cold, and other varying conditions of atmosphere, to which bees are so highly susceptible.

I have elsewhere mentioned the presence of papillæ, at the base of the salivary pouch, also certain apparent sense organs at the base of the tongue, maxilla and calicial palpi, which probably minister to the sense of the taste. At the end of the calicial palpi, and on the latter terminating the proboscis, we see hair-like cuticular processes whose function can hardly be doubted to consist in the sense of touch. It follows that the nervous development of the bee, taken as a whole, is by no means of a low order. Each of the ganglia is capable of individual action, but nevertheless it is probable that the power of co-ordinating muscular movements to a large extent resides in that portion of the nervous system lying in the head, which, according to Carpenter, are chiefly, if not entirely, nerves of special sense guiding and regulating the activity of the other ganglia; moreover, it is supposed that such sensations as the bees enjoy, are appreciated solely by this part of their organization. If a bee is decapitated, it will fly, or walk, or struggle about, but its movements are purposeless except in so far as impressions may be exerted upon the remaining ganglia through internal objects, or by the nervous lesion caused by the operation of removing the head; thus an impression being created by the air moving against its wings it will fly, but with no purpose. Again, if placed upon its back it will move its legs rapidly, but with no object, and will even grasp a piece of stick if touched by it; nay, further, it will rub its legs over the back of the thorax as if the nervous lesion caused an impression on the thorax ganglion of something pressing on it from without; and in this the bee somewhat resembles the frogs of Descartes and Huxley, which, after their spinal cord had been divided, still at-

tempted to rub off an irritating fluid which had been placed on their backs. Yet their movements are perfectly automatic, in all probability unconnected with intelligent sensation, that is sensibility, which centres in the cephalic ganglion. In fact, this large ganglion seems to answer the purpose, and that exceedingly well, of a sensorium, corresponding with the base of the brain of the vertebrata. There is no convoluted nerve matter, no cerebrum, and consequently we should expect no intellect; but as a fact there do appear traces of an intellectual process in the bee, as it barricades the entrance to its house against robbers, or seals to the board obnoxious strangers, such as snails, which sometimes pass the entrance hole. There is no doubt that bees to a certain extent profit by individual experience, as shown in these instances; and again, when they seek the doorway after being newly located, as well as by the clever method sometimes adopted for constructing temporary supports for combs which may have become loose or detached. Perfection in the articulated series, however, as pointed out by Dr. Carpenter, consists in the high development of that portion of the nervous system which is immediately connected with the organs of sense and of motion, and which ministers to instinct while perfection in the vertebrate series shows itself in the high development of a superadded organ, the cerebrum, which is this instrument of intelligence. Insects are essentially sensitive machines, their nervous system exhibiting to perfection that reflex action which depends upon a sensitive apparatus capable of responding to internal impressions, and the honey-bee presents these characteristics in a remarkable manner: nevertheless we do find traces of intelligence or the policy of profiting by individual experience, and doubtless the experience of their ancestors, that is, the result of hereditary experience, becomes impressed upon their sensorium, and probably assists in furnishing a scientific explanation of the undeviating manner in which they carry out what are commonly called their instinctive actions. As an illustration of my meaning, I would instance the way in which bees construct their comb. From a close observation, the details of which cannot now be mentioned, I am of opinion that the cells originated in circular holes or tubes, which from close contiguity, and a persistent thinning out of their walls, came then to present the hexagonal form; moreover, the convex ends of the cells prevented them from being placed exactly opposite one another, without loss of space, and without causing the comb to be of an undesirable depth, hence the cell came to be built each one with its base resting on a portion of three or more other cells, according to the degree of skill in construction. Now this transition from the round to the six-sided cell, which might commence without the intention of the insect architect, would impress itself upon the observation of the bees, since we see that they have a certain power of observation, and individual experience would teach them to profit by the improvement; so, after a lapse of time, hereditary experience would also come to their aid, causing them instinctively to adopt the hexagon, laying the foundation walls in such a manner as to build up cells of this shape, without loss of space, and without needless expenditure of labour in the process. This theory or description of the architecture of the honey-comb suggests improvement and development on the part of the bee; it implies a time when the cells were circular, like those excavated in the lump of wax I show this evening, and a time when the mouth parts of the insect were less perfect than at present; and this supposition is favoured by the discovery of Sir John Lubbock, that the larvæ of bees present rudimentary legs, proving, as he thinks, that they are descended from parents of somewhat different habits who had larvæ. And so our remarks have led up to the wide subject of evolution, which, having just touched upon, we must close this evening's paper.'

A member asked the lecturer how he accounted for the pollen being in the wax and not in the honey?

Mr. Hodges asked whether there had been any recent discoveries as to the visionary power of bees? He also asked whether there had been any experiments as to bees keeping to one kind of flower?

The lecturer said as to the pollen being in the wax and not in the honey, he should imagine that arose from the very light character of the pollen, which might float about while the camp was being built. It would be likely to get mixed up with the wax as they made it. As to the vision of bees that was a somewhat disputed point. No doubt they rose in the air for the purpose of getting a distinct view. They always seemed to rise in the air and then fly straight away to where they wanted to go. As to bees keeping to one flower, his opinion was that they kept to one colour for a whole day. If they saw a patch of one colour, they flew to it, and he should think instinct would lead them to keep to one kind of flower for a day. He thought they went to one character of flower. The majority of the honey came from heather, clover, and lime.

Dr. Strong said they heard of bees going some distance to certain flowers, and of the honey being impregnated with these particular flowers. They went to a much greater distance than they could see. Bees were generally kept in a confined place, and it was impossible that they could rise up and see certain flowers at a great distance. It was a question whether they were led by the scent.

The lecturer believed that bees, like pigeons, had the power of seeing to a great distance. They foraged about until they found some plot of land that was prolific in the flower they wanted, and they were able to find the place again by trees, or by the surrounding buildings.

The President, in proposing a vote of thanks to the lecturer, spoke of the paper that had been read as being one on the minute anatomy of the bee rather than on its manners and customs. At the same time the questions had elicited something about the manners and customs of the bee. The paper itself was one to study, and those who could follow and take up the subject from a microscopical point of view might be able to work out certain parts for themselves, which Dr. Beeby had pointed out. The hive itself was a subject great enough for a whole lecture. He would advise members of the club to take up one part of the subject. They might, as he had said, take the hive, which was as wonderful an adaptation of means to ends as it was possible for them to have. He was far from discouraging the development theory, still there were difficulties connected with it. He was inclined to think that the bee was about the same now as when first produced—that it was as perfect when first produced as it was in the present. He could not see that it had ever been altered by development—as it was formed at first, so it was in the present. They knew from certain circumstances that in the present the bee was very much as it was four or five thousand years ago—that time had made no difference. In referring to the formation of a new queen he said there was only one queen to a hive, and if it happened that she was destroyed the bees went to work to manufacture a new queen. This showed that there was some means of communication—some means of communicating the necessity of the case; some means of communicating the fact that the queen was dead. There was some way of a communication passing from one bee to another, by which they were able to tell a friend from an enemy. They were able to appreciate different sounds. Whether or not they had auditory nerves he did not know, but he was certain they understood something about sounds. Their sight must be extraordinary, or their smell—one or both. He had known an instance of bees returning to the hive with pollen that they must have gone two miles to secure.

A vote of thanks to the lecturer was passed with acclamation.

BEE-KEEPING.

Prize Essay by Mrs. E. S. Tupper.

(*Continued from page* 129.)

The Bee-Moth.—The injury done by the miller and its progeny of worms has been over-estimated. Undoubtedly, before its advent, it was comparatively easy to care for bees. Then weak swarms could be saved and nursed into good stocks, while now they are quite sure to be destroyed by moths. In all my experience with bees I have never yet seen a good or valuable stand injured by worms. I often find them in such hives, but the bees gnaw them out and they do no real harm. But if a hive becomes queenless, or reduced in numbers it is soon overrun. In every stock that I ever examined, something was wrong before it came a prey for worms.

Much time and trouble may be saved to the bees by looking out and destroying every worm, especially in the spring. As they have four generations in one season, every one destroyed then sensibly diminishes the number. Many of them hide in 'patent moth-traps,' and it is a good plan to catch them; but I have seen so many allowed to *hatch* there before they were caught that I cannot recommend them. To careless bee-keepers, they are worse than useless; and painstaking ones do not need them. I often hear it charged that the miller is much worse in moveable-comb hives, and has much increased where those hives have been introduced. This may be, and probably is true, though not from any fault in the hives. The principle they involve is a perfect protection against the moth, but they have made the multiplication of colonies so easy that with young beginners many more weak colonies abound. Where a hive contains more combs than the bees can cover, the millers have a fine chance; and where a large hive has but a small colony in it, the other half is a fine shelter for them. For those, and those only who have learned by experience that the only safe way is to keep bees strong in numbers, under all circumstances, the miller has no terrors. Patent hive vendors who know nothing of the natural history of the bee and care less about it, so that by some plausible story they dispose of a right, are the worst enemies of the bees that I have ever known.

Hundreds of valuable stocks have been ruined, within my own knowledge, by being transferred from one hive to another in a wrong way, or at a wrong season, or by being divided without regard to the principles which should govern the matter to make it successful. When we can enlighten people on the science of bee-keeping, and awaken an intelligent interest in the subject commensurate with its importance, we shall develope one of our great natural sources of wealth to an extent we have never yet approached.

The Italian Bee—Has now been so generally introduced into all parts of our country, and is received with so much favour, that it may seem superfluous to touch upon it here; but as I still see various queries as to its value compared with the common bee, I may be allowed to give some statistics. It is quite common to see accounts of the great yield of honey from a single stand of bees; but isolated cases of this kind prove nothing. The only fair way to decide the matter is to take bees side by side with the others, under the same circumstances of season, pasturage, age of queen, and management. This has often been done, and always with results overwhelmingly in favour of the Italians.

In the summer of 1863, I had but two stands of Italian bees, and those not pure. One of these stored 110lbs. of honey, besides giving three swarms. The other gave two swarms and stored 96lbs. of honey. All the swarms filled their hives, and some of them stored honey in boxes. I had, the same season, 56 hives of common bees; but not one of these stored a pound of surplus honey, though a part of them were divided. That was the poorest honey season ever known in this section.

In the summer of 1865, I averaged, from nine Italian colonies, 119 pounds each. The best of these show the following record in my journal: One full swarm taken from it the 20th of May; 156lbs of honey taken in boxes; stored by the swarm, 70lbs.; from the swarm there came a swarm, August 15, which filled its hive and partly filled two boxes. Thus we have 236lbs. of honey, besides two large swarms, from a single hive! The same summer I had 30 stands of common bees, which I prevented from swarming, yet with no increase from them. I obtained only 1655lbs. of honey, or on an average about 56lbs. to each. The largest yield from either was 96lbs.

In 1865, I had an average of 93lbs. from six Italian colonies, all of which were divided once, and much disturbed by taking brood from them to rear queens. During the same time I did not take a pound of honey from any colony of common bees, though I divided them all, and gave each an Italian queen.

I claim that facts like these are conclusive. All my bees were wintered alike and all in the same kind of hives were made as equal in strength in the spring as possible, and enjoyed the same range. I might quote pages of testimony to the same effect from others; proofs abound wherever the bees have been tried in the same way. If I am asked the reason for so decided a difference, I can hardly give such as are satisfactory. The bees do not differ much in size, but the Italians are more industrious; they work earlier in the morning and in colder weather. I am not prepared to say that they are more hardy. If they winter better, as some assert, I think it is because the queens lay later in the fall, and thus keep the colony strong in numbers until cold weather. They have access to flowers which are useless to the common bee. That their bill is longer, any one can prove to his satisfaction in this way: Fill a tumbler with diluted honey or sugar syrup, cover it with wire-cloth or perforated tin; have it so full that the contents touch the cover, and set it near bees of both kinds. After the black bees have taken it as long as they can reach it through the wire, the Italians will be found still upon it, filling their sacs and evidently lowering it.

Not only do they store more honey, but their queens are much more prolific than the black queens. It is wonderful how much brood may be taken from one of these queens. From one hive, last season,

I took thirty-two frames of brood and eggs at different times from which to rear queens, and from another, thirty-six frames, yet both hives are as strong this fall as any of the common ones from which only one swarm had been taken. As ten frames fill one of my hives, it will be seen that this is equal to three full swarms from one, and more than three and a half from the other.

Changing from Common to Italian Bees.—The ease with which this is accomplished brings Italian bees within the reach of all, in every part of our land. Pure queens are raised by reliable persons and sent, as ordered, anywhere with perfect safety. If it was necessary to purchase and transport full colonies, the work of introducing the new variety would be much more difficult and expensive. Now any one who is convinced that the Italians are profitable, can order one or more Italian queens, and from them raise others to supply all his hives. Many and full directions have been given how to Italianise, but still the plain, simple way seems to be little understood. Having been engaged in the work for some time, I shall try to give some hints which may be valuable to those commencing it.

The queen being the mother of the whole colony, it follows that if a pure Italian queen be given them instead of their own all the bees reared after the change are Italians: and as the bees already there die off they are replaced by the others, and in a short time the stock is fully Italianised. By a *pure* queen, I mean one of pure stock, and which has been fertilised by an Italian drone. There has been much stock reared in this country which is *hybrid*. By this I mean the progeny of a pure Italian queen fertilised by a common drone. This in the *first generation*, is hard to be distinguished from the pure; but it soon degenerates. As the drones are *invariably* like their mother, those reared from such hybrid queens are *always pure*. This fact should be borne in mind, as it makes it comparatively easy to keep the stock right.

[With seven years' additional experience, I am not inclined to change my expressed opinion that the drones from a mother of *undoubted purity* are like herself.

Italianising apiaries in the vicinity of black bees has been rendered much more easy since it has been found possible to secure the fertilisation of the young queens in confinement, and thus have them meet the very drone desired. Numbers of our best apiarians are succeeding in this, and every year the matter is made more simple and easy.]

The queen with which you commence should be pure beyond doubt. Purchase of some one who will warrant her, and whose guarantee you can trust—remembering that in the beginning you will be no judge of their purity. The fall is the best time to purchase your queen, because she will then be ready for early operations the next season. Introduce her into the best and strongest colony you have, for safe-keeping through the winter. If you have but a few colonies, the work for the next spring is very simple. About the middle of May if you examine the hive containing your Italian queen you will find drones in all stages. Then take the queen out and confine her in a cage made by rolling a piece of wire cloth four inches square, into a tube, tying it firmly, and putting a wooden stopper in each end. Next remove from another hive its queen, and having killed her, insert the queen-cage between the two frames, and keep her there forty-eight hours. Then release her, and that hive has an Italian queen. The one from which you took her will preserve her pure drones with care, and immediately proceed to rear queens. In ten days you will find from six to twelve queen-cells nearly ready to hatch. Then take the queens from as many hives as you have queen-cells and leave them queenless about ten or twelve hours. Then from one of the hives take a centre frame containing brood, cut a hole two inches in diameter; cut out one of the queen-cells from the hive containing them, with a little comb each side of it, being very careful not to press or injure it in any way; dip the edges of it in a little melted wax and insert it in the frame, and put it back in the hive. In nine cases out of ten this cell will be gladly received by the bees, and hatch in a few days. This process can be repeated with as many hives as you have cells, and if done by the last of May or first of June you may be quite sure that these young queens will be fertilised by Italian drones, *because you will have no others in your apiary so early in the season.* One or more cells must be left in the hive where they are reared, that it may be sure of a queen; and all your hives should be examined from time to time, to see that the cell in each hatches, and then to be sure that the young queens all lay at the proper time. I usually find them depositing eggs between the third and twelfth days after they hatch. If any colony fails to secure a fertile queen in this way, insert into it, from the hive which now contains your Italian queen, a frame containing eggs, and from that they will rear others. Before doing this, look over all the frames carefully to see that they have not commenced cells from their own eggs.

After you have a fertile queen in each hive, watch the young worker-bees as they hatch, and if all, or nearly so, are slender in form and have three distinct golden rings, you may *hope* they are pure. If there is a doubt about any one, you can exchange it for another at your leisure. Bear in mind that the main thing the first season is to get a young queen in every hive, reared *from the one you purchased.* That accomplished, all your drones will afterwards be pure, and young queens reared from that time forth will be sure to meet pure drones. The following spring your hives will have drones in them two weeks in advance of all black bees in the neigbourhood; and if yours are strong, and you make early swarms, the chances are much in favour of your queens being purely fertilised.

The second season of your operations all doubtful queens should be replaced; and if pains be taken you can easily have none but pure queens in your hives while the original queen which you purchased lives. I find the temper and disposition of the bees a better test of purity than their markings. The Italians are more easily managed, and less easily provoked to anger. If you open a hive of them and lift out a frame, instead of flying in all directions and getting in a rage (as do the black bees), hardly a bee leaves

the comb—all cling to it quietly until it is replaced. Where you find them thus clinging to the comb you have one good mark of purity.

The only *certain* test that I rely upon is the colour and markings of a queen's *royal* children, or the queens reared from her. The female bee is invariably like the father, and the queens are the only *perfect* female bees. If you rear queens from a queen, and they are well marked and coloured, you may be sure she is purely impregnated.

I had a number of fine queens last season whose worker progeny were so well marked that I had little doubt of their purity. Yet on rearing queens from their eggs, they were not like their mother, and *their* eggs, when tested, produced queens hard to be distinguished from common ones. This fact will explain why the Italians in careless hands so soon degenerate. There is no need of this if the queen you purchase is pure, and you take pains the *first* season to put a queen reared from her into every hive you have; and in the *second* season to replace all which show impure marks.

The most difficult part of this process, as I have described it,—and it is more easily done than described—consists in *finding the old* queen. At swarming time (the best season to do it) the hives are or ought to be populous; and to the beginner it seems a formidable operation to look the frames over and find *one bee* among so many. Place an empty hive by the side of the one you wish to examine; after opening the latter very gently, sprinkle it well with sweetened water. It is better not to alarm them by the use of smoke when you wish to find the queen. Begin near the centre, and take out a frame, and look carefully on each side of it. If she is not on it put it in the empty hive and take out another, proceeding in the same way. If the queen is found on neither of them spread a sheet before the hive which now contains the frames, and empty upon it the bees that remain clinging to the hive. If she is among them you will see her as she passes into the hive. If you do not find her, return the frames to the other hive, examining them with care. I have often found the queen on the first frame I took out; and then again, have taken them all out three times before seeing her. There is little difficulty in finding Italian queens; they are not disposed to hide, and their bright colours make them very conspicuous.

(To be continued.)

Trained Bees.—Mr. Cotton, a clergyman, the son of a late Governor of the Bank of England, took bees, in the first place, out to Australia, and afterwards to the Islands of the South Pacific His behaviour to his bees was the wonder of all who were in the ships with him. He would call them by certain sounds, and they came to him, and covered him as he lay, and he would actually handle and fondle them in such a fashion as would have been to another very dangerous. Then when he wished to relieve himself of them, he gathered them together as one would a mass of loose worsted into a ball, took the mass near the hive, and at a given sound or signal they flew apart and retired to their proper home.—From *Thoreau: his Life and Aims*, by H. A. Page.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

'FOREIGNERS' AT LOCAL SHOWS.

In your notice of the Wolverhampton Bee and Honey Show, you say, 'The prize list which is subjoined will show that local exhibitors (of whom there were comparatively few) were beaten out of the field by "foreigners."'

As no one else has made remarks on this most true statement, may I ask whether in the opinion of bee-keepers generally, it is a fair thing for 'foreigners' from favoured districts to be allowed to compete at local shows?

The title of the association which holds its shows at Wolverhampton is 'The Wolverhampton and Staffordshire Bee Association,' and the idea which this conveys to my mind is that its object is to encourage bee-keeping in Staffordshire, and especially in the neighbourhood of Wolverhampton. Whatever other advantages the neighbourhood of Wolverhampton may possess, it is not exactly the place where one would expect to meet with an abundance of flowers or rich pasturage for bees; nor, considering the climate and circumstances of the county generally, should we expect that it would be able to compete with the neighbourhoods of Leamington and High Wycombe. I was not myself an exhibitor this year, because the coldness and wetness of the season when the clover was in blossom prevented my bees from filling their supers satisfactorily; but if I had sent them to the show, such as they were, I certainly should have been much disgusted if strangers from more favoured districts had carried off the prizes.

It may be all very well in poultry shows for exhibitors from all parts to send their birds, as in this case the food is all artificial, and in this respect Staffordshire can hold its place very well with any other county. With bees, however, it is different, for though of course much depends on good management, a great deal depends on the bees themselves, and the opportunities which they have for collecting honey, and however enlightened the management may be, honey cannot be stored in supers when flowers are scarce, or the weather cold and wet. I cannot think that this year's Wolverhampton show will be much encouragement to bee-keepers in the neighbourhood. It is all very well to have one national show, at which all-comers may exhibit, but it seems hardly fair that 'prize supers' should go the round of the country to the discouragement of local exhibitors. I see that the same 'foreigners' carried off prizes at the Sherborne and Grantham shows.

As many persons last winter complained of tomtits, I may mention that I tried the plan of enclosing

the mouth of my hive and the alighting boards in small nets, and I believe with success; probably *wire* netting would be best, but the bees soon got used to the other.—J. W. N., *Stafford.*

HONESTY AMONGST EXHIBITORS.

I am glad to find that the necessity for ensuring honesty amongst exhibitors is being discussed. I attended several shows during the past summer, and was very much vexed to witness the 'sharp practice' of certain exhibitors. One enormous super contained candied honey, which few persons would imagine had been stored this year. It also had a very odd mixture of combs, the colour and general appearance of which showed plainly that they had not been worked by the same stock of bees in the same locality, nor even during consecutive days or weeks. Another big super was filled with comb of such a suspicious-looking description that the exhibitor was openly taunted with having fed his stocks up for exhibition purposes. The owners had, however, signed the usual entry forms, in which there was a clause to the effect that all the honey exhibited had been gathered by their bees in the natural way during the current season. Mr. Miller's suggestion is a good one. It is a general thing for judges at fruit shows to have power to cut pines, &c., in order to test the quality, and there should be a clause in all entry forms reserving this right for committees and judges at our future shows. It is well to treat every man as honest until he is proved to be a rogue, and the proposed arrangement would certainly not offend any conscientious exhibitor, while it might deter some very shrewd persons from exercising their ingenuity at the expense of their honesty.—C. T.

UNITING STOCKS.—TRITONIA.

I have invented a method of uniting stocks that is perfect in principle, and having tested it (but only once) I can report as successful in practice. Though I say invented, I do not for a moment doubt that a slight search among some of the volumes of bee-lore, which your melitto-bibliographical list proves to be so numerous, would show it to have been invented frequently enough already. The *modus operandi* is thus: Take the queen you wish to preserve, or the only one if one stock be queenless, and give her to the other stock, taking such precautions of removing the other queen, encaging the transferred one for such time as proves necessary, as would be taken in any other case of transferring a queen to another stock. As soon as she is accepted by the stock to which she is given, her own bees may safely be added and will mingle with the others on perfectly friendly terms. No driving, smoking, narcotising, shaking up, syruping, or other violence being required throughout the operation.

I would suggest another explanation of the imprisonment of bees in Tritonia noted in your last number, namely, that the bees were temporarily imprisoned by a storm, or other change of weather, and chilled in their retreat, an accident which happens very rapidly at this season.—T. A. Chapman, M.D., *Hereford, Nov.*, 1877.

LECTURES FOR WINTER EVENINGS.

Allow me to suggest that gentlemen who have prepared lectures on Bees and Bee-Keeping should, under certain conditions, which could be defined according to circumstances, lend their manuscripts or copies thereof, to others who are willing to use them during the winter for the promotion of bee-culture, but who may not have time to prepare a lecture.—S. B.

PASTURAGE FOR BEES.—No. V.

(*Continued from page* 90.)

White or Dutch clover (*Trifolium repens*). This perennial plant, from which the bees in this country collect their principal stores, of a very light colour, and delicious honey. White clover is found in every county in Great Britain, and the Indians call this plant 'white man's foot,' as it seemed to spring up wherever the white man trod the newly-discovered world. It blooms from May to September, and will grow at an altitude of 2700 feet. It forms the most nutritious pasturage for cattle, and the best hay.

White clover will make exhausted land productive. *Trifolium repens* is easily distinguished from alsike, or from the common purple clover, by the flower-stalks having no leaves on them. This plant is generally used as the shamrock of Ireland. When white clover is in full bloom the bees are so fond of it that they will desert and overlook many other excellent bee-flowers as unworthy of their attention, and eagerly dart upon it, work and sing thereon all the day long, until the evening drives them with reluctance home to rest. There are about 50,000 seeds in one ounce.

Alsike, or hybrid clover (*Trifolium hybridum*). This perennial plant was first produced in the province of Alsike, in Sweden, and is by far the most profitable and the best clover grown for agricultural purposes. It contains the lasting qualities of *Trifolium repens* and the productiveness of *Trifolium pratense*, nay, it is said to produce a heavier crop, and has the nutritious qualities of white clover. It also has the advantage of thriving on land known to be 'clover sick.' All advanced, intelligent farmers now sow alsike instead of the red clover. The flowers are of a pale pink colour, with leaves on the flower-stalks the same as the common purple clover. The bees collect immense stores from *Trifolium hybridum* of very beautiful light honey, with a fine flavour. There are about 44,000 seeds in one ounce.

Italian crimson clover (*Trifolium incarnatum*). This annual plant on some soils is a highly remunerative fodder plant; and if sown in March, it can be mown in July or August, or on the ground from which early potatoes have been gathered in the beginning of June, it is ready to cut in September. *Trifolium incarnatum* is of great value to the bee-keeper, as his supers are filled in an exceedingly short period of time with a light-coloured honey of very fine quality. Sow about 8 lbs. of seed per acre. There are about 45,000 seeds in one ounce.

Common purple or red clover (*Trifolium pratense*). This perennial is called by some people the honey-

suckle clover. It produces a great quantity of honey, but it is valueless to the hive-bee, on account of its long tubular carola, in which the honey is secreted, the proboscis of the bee being too short to reach it; but it is said by some people the Ligurian bees work on the red clover, but I think it is only on the smaller flowers that they work upon, but the humble-bees work freely on it.

Black medick (*Medicago lupulina*). This hardy annual is called by some people yellow trefoil. It is very prolific, and grows very rank up to 24 inches in height, and produces honey during our severest droughts. Sow early in March about 7 lbs. of seed per acre. It blooms from June to August.

There are about 20 species of clover in Great Britain of the order *Leguminosæ;* nearly all of them produce a quantity of honey, and are distinguished by compound leaves, composed of three leaflets, properly called trifoliate leaves.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

BEE FLOWERS.

Trifolium Incarnatum. — Have any of your readers had any experience with this crimson clover? I hear it is a wonderful plant, not only for the apiculturist, but also for the agriculturist, it being so rapid in its growth and luxuriant in vegetation, to be hardly equalled by any other herb. As an example, the seed in one instance was sown on the 12th of May, and on the 17th the blade began to appear above ground; on the 23rd the leaves were fully developed, and on the 21st of August, when it was cut green, it gave 18½ tons to the acre; the flowering commenced by the end of June, when the height of the plants was about one foot. When in full bloom the field was an object of the most striking beauty, presenting to the eye an unbroken sheet of scarlet. It appeared to be an especial favourite with the bees, and on looking at it on a fine day in July it was difficult to fix upon a single plant that had not many bees upon it.

Sweet Alyssum. — It is a very singular fact that this summer I planted a quantity of Sweet Alyssum within 100 yards of my hives, but not one bee could I ever find obtaining honey from its thousands of flowers. Indeed, a few bees, attracted no doubt by its sweet scent, which to my mind is very like the smell of honey itself, remained but a moment, and then flew away in apparent disgust or disappointment at the flowers not being worth their attention. Perhaps some of your readers have met with the same result, and may be able to explain the cause, as from yourself and other apiarians I was led to believe the Sweet Alyssum to be a most important flower for bees.—Chas. H. Edwards, *Middlesex.*

BEES IN STRATHMORE.

While sending you the enclosed order, I have thought it might not be unacceptable to you to have a few jottings about bees from this quarter (Central Strathmore). It was only last winter, as the result of a lecture on the subject by Mr. Raitt, of Liff, that the attention of bee-keepers around was directed to the advantages of the bar-frame hives and the humane system of treatment. The new system and hives, though probably heard of, were never thought of before. Bee-keepers are plentiful in the district, and to them the lecture made patent the difference between bee-keeping and bee-management. The previous season had yielded a most luxuriant honey harvest to all, and the more readily enabled the lecturer by reference, to compare, without exaggerating, the overwhelmingly advantageous results of the new system over the old. The general effect of the lecture was that some became enamoured and enthusiastic; others thought the system might be tried; a few, with the usual Scotch 'canniness,' would 'wait till they saw;' while most shook their heads in dubiety or expressed their incredulity. One or two, however, in the early spring, prepared in earnest for the introduction of the new hives, and a practical test of the matter Receiving a few lessons in handling, and a little knowledge from the study of the 'Leaflets' obtained from yourself, they set to work, and their example was not altogether in vain, for hive-making, artificial swarming, housing into frame-hives, and transferring, became the rage of the season; many of the formerly dubious submitting graciously to the inevitable. Good results were nervously wished and hoped for by those of us who had taken the lead, and stood up for the new style; but now, while in concert with bee-keepers in all quarters, we lament over the results of the year in general, we have in addition to lament that by many who submitted to a trial for the first time, the present miserable condition of affairs is debited to the hives, and not to the past atrocious bee-season, common to hives and skeps alike. It has no effect, by way of argument, to refer them to their neighbours carrying in their dead skeps: it is enough for them that their bees have not thriven in the wooden hives, *ergo* they are unsuitable, and the system a delusion.

It certainly has thus far been unfortunate for the pioneers of advancement here, and a strong argumentative peg to those who 'waited,' but did not wait so long before roundly denouncing this 'unnatural dealing.' Notwithstanding, hope not having expired, a few of us are determined to continue the trial into another, and we would hope a better bee season, provided that when that time comes we have any bees left to begin with. So bad are matters in this quarter that on this point we are not oversanguine.

We have established a club, and arranged for a regular supply of the *Bee Journal*, and added to its study a few necessary experiments and a closer observation than hitherto, we expect to keep up in bee matters. The want of young brood is our greatest vexation at present.

I may mention that I had a note from a friend the other week, who resides about ten miles off, noting the past season to have been the worst in his experience, and he has kept bees close on NINETY years.—John Jack, *Newtyle, Nov.* 10.

BEE ANÆSTHETICS.

No thumping is needed when chloroform is used by my method. If the bees fall down so thickly as to lodge between the combs, the hive may be gently shaken; but, as a rule, this is not wanted. Methylated chloroform at one and sixpence an ounce is quite as good for the work as the pure at three shillings. I only use chloroform when I have no puff-ball on hand; it is too expensive. The merits of the latter are, it appears, not sufficiently appreciated, for in 'Popular British Fungi,' by James Britten, we are edified to the following extent:—

'The use of the plant (Lycoperdon giganteum) in stupefying bees was at one time very general, the puff-ball being specially prepared for that purpose by being compressed while in its young spongy state. A small piece, of about the size of half-a-crown, is sufficient to stupefy for half-an-hour. It is burnt in the fumigating vessel with some well-dried chips. The effects, however, were so injurious that it gradually fell out of use, and no skilful apiarian now resorts to this method of depriving the bees of their honey.'

What do the skilful apiarian readers of the *Bee Journal* think of this? Perhaps the stupefying qualities of puff-ball are not confined to bees.

Two of the most skilful apiarians of my acquaintance—one a highly scientific man—have both used puff-ball for twenty years with unvarying success. Persons living in the Fens may gather puff-ball for themselves. It needs no preparation beyond putting it into the oven over night, and taking it out next morning ready for use.—Arthur S. B. Miller, *Apiarian, Mount Pleasant, Cambridge.*

PLURALITY OF QUEENS.

While I was taking a look at my hives the other day I saw what appeared to be a dead queen in front of one of them. A closer inspection convinced me I was right, and filled me with alarm, for she was, I believed, my favourite Italian. With the aid of another pair of eyes I at once proceeded to examine the stock. Right in the centre of a comb near the middle of the hive I found two royal cells, both empty. 'My yellow jackets are gone,' said I, for I knew that queens reared at this season were useless, and with good reason I concluded that my parent queen had been lost. What was my surprise, however to find on the next comb, first a beautiful princess, and then on the other side the mother, apparently quite well! There was sealed brood on the same comb, but no eggs that I could see. I had, however, stopped feeding for about a fortnight. I strongly suspect that a lot of strange bees, which I had joined to this stock more than a fortnight since, had, on being deprived of their own queen, commenced these royal cells before taking up with the Italian one, which is a queen of this year, and hitherto quite fertile. Anyhow, I am disposed to leave the two together and see what will come of it. Thanks to the moveable-comb principle, as yet so new in this quarter, many interesting facts are learned about our bees of which we never could have dreamed in the days when our skeps were rather dungeons than palaces.—William Mann, *Blairgowrie, Nov. 16, 1877.*

TRANSFERRING BY NIGHT.

Last week I bought seven skeps, only weighing about 55 lbs. in the whole lot; the first two I put into the bar-frame hive I already have with the best of the filled comb; the three next poor ones I put into another, and two strong ones into a third. The first two were driven in the daytime, but the next two skeps I drove at night, beginning at nine o'clock. Believe me, they ran up splendidly; the two skeps were completely emptied in about an hour, in less time than the two I drove in the day time, and with fewer bees on the floor. I have not seen any mention made of driving by night, but my experiment proved more successful than those by sunlight. After I had driven enough to stock a hive, and got the combs fixed in the frames, I turned up the skeps of bees, blew a whiff of tobacco on to them, and sprinkled with thin syrup. The smoke made them run up the sides of skeps, when with a little poking about by a stiff feather, I soon found the queens, which I took out, then the three lots were mixed together, giving a slight shaking to each when turned in, and forthwith poured the whole in between the frames, and dropped the best of the three queens in amongst them, keeping the remainder with a few bees for a day or two in case of accidents. I must mention that the operations were performed in a room with closed stove, containing a good fire to make the bees lively before I commenced. Besides giving as much syrup as they would take eagerly through their covers. I drove by the open method, but in only one did I see her majesty go up too quickly to be caught. In driving I found that when any began to cluster on the way up, a little stroking with a feather set them off again. Since I last wrote you, I begin to feel quite expert (many thanks to your able guidance). I have already got two converts to your bar-frame hive, one of whom says, 'he will never have skeps again, or watch for his swarms' (I shall see that his hive is strong enough first), and he is going to put two strong heavy skeps into the bar-frame hive.—E. W. L., *near Huddersfield.*

A PLEA FOR THE TOAD.

I have waited patiently since the issue of the August number of our *Journal*, to see if there was one bee-master who would say a word in favour and on behalf of 'the poor toad.' No one having done so, I take up my pen to tell you, that I admire them so much for their usefulness that I cultivate numbers of them about my apiary.

Now it is a well-known fact, that toads live chiefly upon insects; hence, if a Ligurian or black bee falls to the ground and does not soon recover itself, and fly to its hive, the chances are that the toad will lance it with its wonderful tongue, which is very like a hair of the human head, and which is darted with the rapidity of lightning; I really ought to say 'greased lightning,' for so swift is the movement of this curious and wonderful organ, that it is with the greatest difficulty the object when piereed is seen to be drawn into its mouth. Every apiarian knows that a bee which has fallen to the ground, if not recovering itself in a short time, is lost to the hive to which it

belongs, for it either rests on the nearest bit of herbage, or runs about the ground in a wild state, till the chill of the evening overtakes it, and then dies. I have myself frequently picked up live bees that I have seen stationary or running about the ground and put them upon their settle-board; but it is seldom I could persuade the sentinels on guard at the entrances to accept them; and frequently the bees themselves when placed on the settle-board, will insist upon not entering the hive, but run to the edge and drop to the ground to die, unless one of my toads happen to be near, and then he gets the delicate morsel. Well, I ask, is anything lost to the bee-master by these few bees being eaten by toads? Singular to say, my toads seldom make their appearance or show themselves till the shades of evening, they being really nocturnal animals. Thus, I submit what bees are found upon the ground after sunset my toads are perfectly welcome to, as it is evident under any circumstances they would not again find their way to their hives. I advise, and beg of you my brother apiarians, never to kill a toad, but cultivate them about your hives, the result being that you will be very much less pestered with spiders, earwigs, moths, &c., &c., for your good friend the toad will consume these in preference, and with greater avidity than your bees.—Chas. H. Edwards.

APIARIAN NOTES.—LIGURIANIZING.

We had very wet weather about here (Hull) in January and February, hundreds of acres often under water, with cold raw air, not much snow or frost until the latter end of February, and then only for a few days. Bees were very quiet all winter, never had a chance to examine them until March 14th, when, finding them out in great numbers and the sun nice and warm, I cleaned the floor-boards and transferred one lot into a clean hive, scrubbing the other well. Found both stocks very strong, with lots of food, many young bees hatched, and eggs and brood in both hives. Had been feeding slowly for some time.

April 4th.—A fine day, but in the evening a very heavy storm of rain with thunder and lightning, the latter very vivid, and the rain came down in torrents for some hours.

May 30th.—Advised of the sending of two imported Ligurian queens from Abbott Brothers; so formed two artificial swarms to be ready.

May 31st.—Queens arrived safely, and were placed in their travelling boxes—perforated zinc being substituted for the lid—over the holes in centre of crown boards, and left until the following day, when the weather being very cold and raw, they seemed chilled with it, and not many bees from the swarm taking any notice of them. Opened the communication, but they seemed unwilling to leave the box; and, as it was a cold north-easter and I feared the queens might suffer if left another night, I compelled them to descend. They were favourably received, and on examining them next day found both right, but there were so few bees in the swarms; feared they would never live.

June 6th.—As the brood in the comb given to the swarms did not hatch well, owing to deficient warmth and lack of bees, determined to transpose swarms with stocks, so that at any rate their Ligurian majesties should have the best chance of success. Secured one queen upon a brood comb over some honey cells in wire cage with only one attendant, and then placed swarm in place of stock. On the following day went to look at them, and was sure by their movement that the queen had been accepted. On opening the hive and looking at the cage I could not help smiling, 'Oh, then you thought I should not have it all my own way quite!' They had eaten a way through the wax until the cage fell over and the queen could get free. Still I felt sure that she was safe, and, looking over the combs, found her busy at work among her new subjects. I then took the cage and operated upon the other swarm in the same manner, and thought that I would fix the cage firmer so that they should not let her out this time. I was prevented from examining it the following day, but went the next one and found all going on right to all outward appearance. On opening the hive I found the cage surrounded by a dense mass of bees, and had to look on awhile to see what humour they were in. Finding they were in tolerable good temper, I raised one edge of the cage and watched anxiously to see her majesty come forth, but I waited in vain. I could not see anything like her among the now increased knot of bees, so began poking them about in the cage to find her, but she was not there; emptied the cage and began to search among the combs, and there I found her receiving the attention of her new subjects, and was glad to see her extend her proboscis and two or three of the attendant bees commence feeding her—so that was all right.

June 13th.—Examined hives and found both Ligurian queens busy egg-laying, and quite at home; they seem to be very fine ones. The black queens in swarms are in a poor plight as to numbers, and many grubs dead in the cells, and some perfect bees also, owing to the chill after making swarms.

June 17th.—Found queen and nearly all the bees had deserted one of the swarms, and, looking about, found there was great excitement and furious fighting going on at one of the stocks where imported queen had been given. On going to them found a knot of bees on the ground, and surmised they were encasing a queen, and on examination found a black queen, and so traced the fugitives. As ants had got into the hive they left, I transposed one of the Ligurian stocks there, as it was stronger, and placed the black queen along with a few workers under a wine-glass over the hole in the top of the hive where the swarm had gone. Visiting them a few hours afterwards found all busy working. Suddenly they stopped and set up a loud hum for a minute or two, when they became quiet again, so allowed queen to descend.

June 21st.—Examined it again to-day and found no queen, but two queen-cells, one sealed. I cut them out, and placed a comb of Ligurian brood in for them to raise a queen from. Found the black queen dead on the ground, and on examining her found she had lost two of her feet, hence I suppose the reason of her rejection.

July 2nd.—Finding five or six queen-cells sealed in the swarm, raised from Ligurian brood, I to-day cut three out and placed one in a small nucleus on the stand of a black stock, and removed black queen and some workers on combs to another position, adding a brood-comb from Ligurian stock to each. Added also a brood-comb to the other Ligurian stock, and removed most of the combs with chilled brood in. Placed two queen-cells in a brood-comb in another nucleus, and brushed a lot of bees from best Ligurian stock into it, upon another stand, and shut them up until evening.

July 4th.—Examined hives with queen-cells, and in one found a queen at liberty, but apparently a black one (much to my annoyance), and the other cells ruptured, and, looking for the late occupants, found two on the ground—one dark and the other a fine Ligurian. Never could understand how these dark queens were produced, and the one hatched bred only black bees, and all were from one comb. One of the others had the cells roughed, but none at liberty. In the other one found bees busy at the cell with their mandibles cutting it round, and then seizing it and standing so as to gain all possible leverage, with jaws and fore-legs pulling away with might and main to get off the lid. Kept the comb in my hand

until, by repeated efforts and the pushing from within, aided by a little pull from me, I had the pleasure of seeing a beautiful Ligurian queen emerge from her cell. In the evening received a strong swarm of black bees.

July 7th.—Found no queen at liberty in the other nucleus, but one cell roughed, and three or more constructed and sealed; so what does that mean? Perhaps the others are dead.

July 19th.—Found eggs and grubs in small swarm, with dark queen hatched on the 4th. As no queens hatched in the nucleus examined on the 7th placed another brood-comb in.

July 24th.—Found one queen at liberty, two cells ruptured, one sealed, and one with grub in not sealed. The Ligurian queen hatched on the 4th instant did not begin laying until to-day. Saw her take flight from the comb on the 22nd, and was afraid of her not returning, but found her on the 23rd, but no eggs. Took a comb from Ligurian stock and placed in hive on the stand occupied by black swarm of the 4th, and removed queen and ripe brood-combs to another place; but these never raised a queen, and the one hatched to-day in the other nucleus was missing some time after, and I eventually joined the bees to another swarm, and also the blacks. It seems strange that I should have had so little success, as I only raised one Ligurian queen that became impregnated, and that one is still living and breeds beautifully marked bees. I think that the badness of the season and the great scarcity of food must have been one great reason, for during the height of the summer I have been compelled to continue feeding them to prevent them from dying of starvation. Some of these small swarms I found when looking for the hatching of the queens had no honey whatever in the cells, and if I had not fed them they would certainly have died; and in September and October every one of my stocks had to be fed very liberally for the winter.

August 24th.—I to-day drove and united two hives at Kilnsea, and caused the natives some amusement, and great astonishment was expressed at the ease and success of the operation. They had been bee-keepers for years, and yet had never seen a queen before I introduced them to her majesty. In both these cases there was very little honey stored, and in one I do not think there was an ounce. I took them a feeding-bottle and block, and showed them how to prepare suitable food.

September 8th.—Drove three hives at another place, and found the same scarcity of provision; brought the bees home and united them to two of my stocks. It is remarkable that within 150 to 200 yards from the place where these badly provided hives stood, another friend of mine had six or more so heavy with honey I could scarcely lift them. They must have had the same pasturage, and all were the common black bees.

October 24th.—Drove two other hives a few miles away, and brought the bees and united them to two of my Ligurian stocks. Queens were saved, although one was encased the following day, and also a fine black queen which I removed, and released the Ligurian.

November 3rd.—Received two more Ligurian queens from Abbott Brothers, as I had reduced my number to five stocks, so that I might start fair next spring, having only Ligurian queens at the head of all my colonies, four of them imported and one home-bred. Having united three hives of driven bees to the two stocks I wished to introduce the new queens to, I had the greatest difficulty to find the black queens among the mass of bees, and after six hours only succeeded in finding one. After finding this, and securing her under a wine-glass with a few attendants, while looking over the combs of the other hive for the queen, I observed the bees were leaving it, and looking round found they were going in crowds to the hive from which I had taken the queen; so here was a pretty mess. I concluded the queen must have gone there and so the bees had followed; and if I could not find her before it seemed utterly impossible to do so now amongst the increased masses of bees. As they had thus fraternised I knew that I could do anything with them, so hustled several lots back again to make up the complement of the almost deserted hive. As I could not possibly tell in which hive the queen was, I desisted, and left the Ligurian queens in their boxes over the holes in the crown-boards, as I did before in May; so that if I could find out in the morning which was queenless they may be ready to join them. On the following day I could not find the queen in either of them, and was somewhat puzzled with their buzzing as both seemed so much alike, and, of course, I thought they ought to sound differently, as I expected one had a queen. However, one lot seemed anxious to get at the new-comers, so I allowed them to ascend, and watched their movements; as all seemed right I pushed the Ligurian queen among them, and she was well received. With the other hive I allowed a few to ascend, and left the box on all night, as they seemed quiet, leaving a small opening for them to join if they wished, and covered them up snugly. In the morning the box was full of bees, so I hunted for the queen, and, finding her all right, made her go down upon one of the combs. Shortly after I found both the queens accepted and all going on quietly, and on the following day they were all right; and so ends my bee season for 1877. I never found the other black queen, and cannot imagine what has become of her, unless she was lost during the protracted examination of the hive.—J. R. J.

SETTLING ACCOUNTS.

'It is "a shame" they cannot settle accounts from the shows before this time.' Thus I read a P.S. from 'A. W. B.' in the November number of the *B. B. Journal*, myself being the humble individual hit at (I hope, too, the only one). I assure the writer of the P.S. that, as treasurer and secretary of the Lincolnshire Bee-keepers' Association, I did my best to arrange as early a settlement as possible of all matters connected with that Association's Exhibition at Grantham; and if he, as an exhibitor there having a claim, has suffered inconvenience, I must beg he will excuse any delay which he may have thought existed: and I would wish, at the same time, to inform him that the labour of a treasurer and secretary in arranging for such exhibitions and the after-work, if done properly, is very heavy indeed.

Now, Mr. Editor, considering that all this labour is undertaken and done, as you know, voluntarily, at considerable sacrifice of valuable time, and with no other motive than to further the great object which the Lincolnshire Bee-keepers' Association holds foremost, benefiting, as it most assuredly does, a large number of my brother bee-keepers (I hope 'A. W. B.' amongst the number), I venture to think you will agree with me that some little forbearance should be exercised if delay should occur in settling accounts. It is, however, great satisfaction to me to know it is so with those who are *truly* interested in our great work. If 'A. W. B.,' as an exhibitor at the Lincolnshire Bee-keepers' Exhibition at Grantham, cannot cheerfully wait the convenience of a hard-working committee, as did fifty-eight out of the fifty-nine exhibitors, the best advice I can tender him is that at our future exhibitions he should be an absentee. The treasurer and secretary will then have a little less work, and he will not have the trouble of banking between 3*l.* and 4*l.* paid to him for prizes, and between 7*l.* and 8*l.* for honey sold.—R. R. Godfrey, *Grantham, Nov. 26th.*

BEES.

ECONOMIC ENTOMOLOGY.

(Published by permission of the Science and Art Department, S. Kensington.)

The domestic or Honey Bee is a native of Europe and Northern Asia, and if not also of North America, must at least have been introduced there at an early period. There are a number of species or races.

It lives in societies the numbers of which vary, according to circumstances and age, from a few up to 30,000 or even 50,000, or more. The members of the society are of three kinds: males, which are called Drones; females, or Queens; and Workers, which are merely females whose development has not been completed.

The phases through which they pass are, first, the egg, which is laid at the bottom of the cells of the comb, which are of different sizes, according as they are intended for the breeding of drones or workers, or for storing honey and bee-bread. In four or five days it is hatched, and a white fleshy grub comes forth, which, unlike most other insects, is as helpless as man himself in his infancy. It has neither eyes nor legs, and of course can neither see nor walk, and, lying as it does at the bottom of the deep cell, cannot even wriggle out in search of food as other insects without feet do. It would therefore die if it were not fed by some one else. This is done by the workers, the youngest of which are usually employed on this duty. The food given it is a whitish transparent liquid, composed of bee-bread mixed with honey, and is so liberally supplied that the young larva actually floats on it. The bee-bread consists of pollen collected from flowers and stored in the cells. The honey is the nectar of flowers, which has undergone some alteration by being retained for a short time in the honey-bag of the bee. The time which the larva takes to attain its full growth is very brief, varying from four to six days. When full-grown it spins a silky cocoon round itself, so slight as to be invisible on ordinary examination, and it then passes into the pupa state. The workers then seal up the top of the cell with a mixture of bee-bread and wax. After a lapse of about fourteen days, the transformation of the insect from the pupa to the perfect bee is completed, and the bee makes its way out, tearing open the covered top of the cell. The above is the time taken by the workers, but the drones take a little longer, the queens shorter; the times required for attaining the perfect state by queens, workers, and drones, from the laying of the egg, are respectively sixteen, twenty-one, and twenty-four days. The only duty of the drone is to impregnate the female, and it leads an easy and luxurious life, eating, and drinking, and doing no work. This is not a matter of option with it, for nature has provided it with no tools to work with. It has no pockets on its thighs for carrying pollen, nor any apparatus for secreting wax, nor a suitable tongue for gathering honey, neither has it any sting.

The life of the working bee, on the other hand, is one of continued labour, and it is provided with all necessary tools. It has an apparatus for secreting wax for the comb. This was formerly thought to be elaborated by the bees from the pollen of flowers, but it is now well known that it is nothing more than the animal fat of the bees, which exudes or perspires in an oily state from its body through certain pores (eight in number) on the under side of the abdomen, which lie under the four middle segments. On its exposure to the air the wax thickens into flakes like fish-scales, which may be seen adhering to the bee on turning it up. These flakes are withdrawn by the bee itself and carried to the mouth, where they are made soft and ductile, and then moulded into the hexagonal cells of the comb. The hexagonal form has been shown by mathematicians to be of the exact plan which is fitted to hold the greatest quantity in the least space; and although some have endeavoured to show that this form is perhaps produced by the cells pressing against each other, it can hardly be disputed that the whole structure of the comb, its position (depending from the roof), the arrangement of the cells (placed end to end horizontally, like tiers of barrels on their sides, but slightly sloped upwards, so as to prevent the honey running out of their open mouths), and the marvellous uniformity with which all this is repeated exactly by every new generation of bees, is a wonderful example of adaptation of means to an end, as well as of its accomplishment by what is called unreasoning instinct. Next, the worker-bee has a honey-bag in which to collect the honey to put in its cells. It is not its stomach, and no digestion takes place, although it seems that some alteration does. Properly speaking, the honey-bag is merely an expansion of the gullet. A long tongue for sucking up the honey is another necessary part of the apparatus possessed by the worker. Again, it is provided with cavities hollowed out on the outer side of its hind thighs for holding the pollen it gathers for feeding the larvæ, and brushes attached to the legs for sweeping the pollen into them. Lastly, it has a sting, connected with a poison-bag, to protect itself and its stores.

If the larva is destined to be a queen, its cell is enlarged and made into an acorn-shaped form, and it is fed upon somewhat different food, called royal jelly. The queen is like a worker, but may readily be distinguished by the greater length of her body, and the shortness of her wings. She has no apparatus for making wax, no pockets or brushes for collecting pollen; but she has a sting, which, however, she only uses in destroying any rival competitors for her throne, several queens being usually reared together in order to provide against casualties. Her chief function is to lay eggs, from which the future population of the hive is to spring, and she is estimated to lay from 1500 to 2000 a-day in the breeding season, and in one year may produce more than 100,000 bees. She enjoys a far longer life than the drones or workers, her age extending generally to four and sometimes to five years.

The duration of the worker's life differs according to the season. In summer it is said to be only about six weeks, but if hatched at the end of the season it lives all the winter, thus living from six to eight months, but no longer. The life of the drones extends to about three or four months. They are mostly hatched in the spring, and generally do not

survive August. It has long been a popular belief (Shakespeare speaks of it) that when the season draws towards an end, and there is no further use for the drones, they are then stung to death by the workers in order to save their winter store from consumption by these unproductive members of the community; and Huber, on the faith of the observations of his servant Burnens, asserts that they are so destroyed. Modern observers, however, are generally of opinion that no stinging takes place. If the workers kill the drones, it is not by stinging but by worrying them. It is a question, however, with some naturalists, if there is any massacre at all; these suppose that after having impregnated the queen, and thus completed the purpose of their existence, they become moribund and would then die a natural death, and that perhaps the odour of their approaching mortality proves offensive to the workers, who, to rid the hive of it, hustle and drag out the offensive members. There is no question that a large mortality takes place in the month of August. When, by any accident, as the previous death of a queen, the young queen in the hive is a virgin, the drones survive for a couple of months longer, which is supposed by those who believe in the massacre to be due to the intelligent toleration of the workers, and by those who do not, to their vital energy not having been exhausted. It is a fact that all unimpregnated insects live longer than those that are impregnated, and the same principle may apply to the males.

Another point on which doubt rests is the history of the impregnation of the queen. It is generally said that this takes place during a short flight that she takes once in her life for a quarter of an hour or so, when she is supposed to intermarry with strange drones, and the idea is that this is to prevent the evils of breeding in and in; but this seems inconsistent with the existence of perhaps more than 2000 drones in the hive at home, and with the fact above mentioned of the prolongation of the life of the drones in hives where the young queen is virgin.

The population of the hive at the commencement of spring is necessarily small. All the drones are dead, and all the workers, except the very last hatched brood of the previous year; but very soon the queen re-peoples the hive, and by-and-bye the number of bees becomes too great for its dimensions. This is remedied by a portion of them swarming away to establish a colony elsewhere. In these cases it is always the old queen that leads them, although the emigrants are of any and all ages.

APIARIAN LITERATURE IN CHRONOLOGICAL ORDER.

19th Century, First Half.

(*Continued from page* 131.)

Bosc. L'Abeille. (Dictionnaire de Déterville.) Paris, 1809.
Delabauze, C. F. A. Traité sur l'Education des Abeilles et des Vers à Soie. Paris, 1809.
Kleflhaber, J. K. S. (German). Code of the Apiarian Society of Nuremberg. Nuremberg, 1809.
Marc. Lettre sur l'Education des Abeilles. Vesoul, 1809.
Michaelis, J. B. (German). The Essential for a Practical Bee-keeper. Munster, 1809.
N. (German). The Experimental Bee-keeper. Lunebourg, 1809.
Bosc. Rapport sur l'Essai relatif aux Abeilles par Feburier. Paris, 1810.
Feburier. Précis d'Histoire Naturelle des Abeilles. Versailles, 1810.
——— Traité sur les fausses Teignes. Versailles, 1810.
Delion, A. W. (German). Summary of Apiculture with Straw Hives. Hall, 1811.
Harasti, G. Ch. (Italian). Bee-culture in the Kingdom of Italy. Milan, 1811.
Latreille. Des Abeilles. Paris, 1811.
Nozarzewski. Note on Bee Management in Poland. Paris, 1811.
Savani, L. (Italian). Practical Method for Preserving Bees. Milan, 1811.
Varemberg. Ruche française et Education des Abeilles. Dijon, 1811. 2nd edit. 1843.
Buchepot. Considerations sur les Abeilles. Paris, 1812.
Jensen, H. V. (German). The most advantageous Treatment of Bees. Vienna, 1812.
Sprengel, E. K. (German). Usefulness of Bees. Berlin, 1812.
Birkenstock, J. C. (German). Artificial-reared Queens. Frankfort, 1813.
Montfort, Denys de. Ruches à trois Récoltes Annuelles. Paris, 1813.
Gournay. Discours sur la Ruche Pyramidale. Paris, 1813.
Hellenthal, K. A. (German). The Economical Gatherer. Pesth, 1813. 2 vols.
Loppinet. Traité sur l'Education des Abeilles. Paris, 1813.
Birkenstock, J. C. (German). New Improved Apiculture. Frankfort, 1814.
Esaplovics, J. V. (German). Bee-culture with Double Hives. Vienna, 1814. 2nd edit. 1815. The same work in Latin. Vienna, 1814.
Goetz, J. K. (German). Short Treatise on Bee-keeping. Munich, 1814.
——— (German). Theoretical and Practical Instructions on Bee-keeping in Bavaria. Nuremberg, 1814.
Schmid, J. Ch. E. (German). Principles of Bee-culture. Stuttgart, 1815.
Desormes. Traité élémentaire et pratique sur le Gouvernement des Abeilles. Paris, 1816. 2nd edit. 1825. 3rd edit. 1837.
Dubien. La Ruche de Gélieu. Paris, 1816.
Noir, Becker le, J. (German). The Bee-keeper. Frankfort, 1817.
Gélieu, J. De. L'Apiculteur Expérimenté. Aarau, 1817.
Mandeville, V. Fable of the Bees. London.
Schikulzki, J. Nova commodissima ac utilissima Apum Cultura in duplicatis Alvearibus. Cassoviæ, 1817.
Walkenaer. Mémoire pour servir à l'Histoire Naturelle des Abeilles. Paris, 1817.
Beck, J. F. (German). Bee-culture in Courland. Mittau, 1818.
Lombard. Cours sur l'Education, la Multiplication et la Conservation des Abeilles. Paris, 1818.
Leopold, J. L. G. (German). Complete Treatise of Bee-keeping. Nordhouse, 1818.
Marton, G. (Hungarian). Economical Bee-culture. Pesth, 1818.
Müller, Ch. G. Treatise on Practical Bee-keeping for every Country. Cannstadt, 1818.
Jensen, H. V. (German). Notes on the most profitable Treatment of Bees. Augustenburgh, 1819.
Kretschmar, A. (German). Treatise on Apiculture for Saxony. Leipsic, 1819.
Ruprecht, B. G. (German). Treatise on Apiculture for Silesia. Breslau, 1819.

Seeger, J. G. (German). Some Experiences of Apiculture with Straw Hives not generally known. Dabrilugh, 1819. 2nd edit. 1823.
Knauff, J. E. (German). Evenings of Autumn, Winter, and Spring, &c. Jena, 1820.
Lucas, J G. (German). Instructions in Practical Apiculture. Prague, 1820.
Rumpf, S. (German). Management of Bees and Beepasture. Aarau, 1820.
Wickede, A. J. O. (German). Apiculture. Rostock, 1820.
Carmagnola, G. (Italian). Bee-culture. Turin, 1821.
Knauff, J. E. (German). My Apiarian Journal for 1820. Jena, 1821.
Latreille. Eclaircissements relatifs à l'Opinion de Huber fils sur la Cire. Paris, 1821.
N. (German). Treatise on the Extraction of Wax. Zurich, 1821.
Caignard. Ecole pratique de la Prée sur les Abeilles. Paris, 1822.
Murphy, Delavabre de. La Nouvelle Ruche à Miel. Paris, 1822.
Deloche. Culture de l'Abeille dans la Savoie. Chambery, 1822.
N. (German). The Good Bee-master. Evreux, 1822.
Lacenée. Mémoire sur les Abeilles. Lyon, 1822.
Andrieu. Mémoire sur les Abeilles. Carcasonne, 1823.
Beaulieu, Hervé de. Sur les Abeilles. Nantes, 1823.
——— Indication de Remèdes. &c. Nantes, 1823.
Unhoh, N. (German). Treatise on the Proper Knowledge of Bees and Bee-culture. Munich, 1823-1824.
Schoessler, J. J. (German). Lucid Instructions on Bees and Bee-culture. Brünn, 1824.
Mirbeck. Le Questionneur. Nancy, 1825.
N. (German). Apiculture in all its Bearings. Ulm, 1825.
N. Practice of Smothering Bees. Bordeaux, 1825.
Neider, J. E. V. (German). Rational Bee-keeping. Nuremberg, 1825.
Boilley. Le hasard utilisé, ou la Ruche Jurassienne. Lons-le-S., 1826.
Desormes, F. Précis complet d'Apiculture. 1826.
Hecker, J. A. (German). Treatise of Apiculture. Amsberg, 1826. 2nd edit. 1836.
Vallivon, Albite de. Ruche perfectionnée. Paris, 1827.
Fardet. Petit traité pratique sur la Culture des Abeilles. Lons-le-S., 1827.
Frémiet. Ruche de Bois. Dijon, 1827.
L——, J. F. S. (German). Short Manual of Bee-keeping in Franconia. Nuremberg, 1827.
N. (German). The best Bee-keeping. Hanover, 1827.
Burchner, Ch. (German). Treatise on Apiculture, &c. Munich, 1828.
Cannel. De la Ruche Madécasse. Bourges, 1828.
Feburier. Méthode certaine et simplifiée pour soigner les Abeilles. Paris, 1828. 2nd edit. 1854.
——— Histoire Naturelle des Abeilles. Paris, 1828.
L——, J. F. S. (German). Are Swarms advantageous or not? Nuremberg, 1828.
N. (German). Practical Remarks on Bee and Silkworm Culture. Leipsic, 1828.
Rédarès. Des Abeilles et de leurs Produits. Paris, 1828.
Unhoh, N. (German). Substance of the complete Work. Munich, 1828.
Canolle. Manuel du Propriétaire d'Abeilles. Marseille, 1829.
Moiranx. Fragment d'Huber sur les Abeilles. Paris, 1829.
Putscke, K. W. E. (German). New Apiarian Catechism. Leipsic, 1829.
Raschig, G. K. (German). New Complete Manual of the Knowledge of Bees and Bee-culture. Berlin, 1819.
Busch, F. B. (German). Apicultural Guide for Poor Countries. Arnstadt, 1830. 2nd edit. 1840.
——— (German). The Correct Manual of Bee-keeping in Germany. Arnstadt, 1830.
Dinkel, G. M. (German). Complete Treatise of Apiculture. Kuenzelsau, 1830.
N. (German). Simple Method of a simplified Bee-keeping. Rentlingen, 1830.
Vitzthum, A. (German). Manipulations and Experiences in Apiculture. Manheim, 1830.
Dainko, P. Bees, &c. Gratz, 1831.
N. Campagnie française pour la Culture et la Multiplication des Abeilles. Paris, 1831.
Niemandsfreund, A. (German). Short and plain Treatise of Apiculture. Kaschau, 1831.
Ritter, G. S. (German). Theoretical and practical Instructions in Bee-keeping. Leipsic, 1831.
Casimir. Manuel de l'Apiculture des Abeilles. Paris, 1832.
N. (Ratzberg) (German). The Honey-bee. Berlin, 1832.
Ruffiny, P. (German). Practical Bee-keeping. Kaschau, 1832.
Vogelbacher, J. B. (German). Treatise of Profitable Bee-keeping. Fribourg, 2nd edition, 1832. 3rd edition, 1851. 4th edition (Dzierzon system), 1855.
Ramdohr, K. A. (German). The easiest and most profitable Bee-culture. Berlin, 1833.
Sachse, W. (German). The Bee-keeper. Weissensee, 1833. 2nd edit. Leipsic, 1836.
Walter, F. (German). Treatise of Apiculture. Schoenburg, 1833. 2nd edit. Güstrow, 1837. 3rd edit. Anklam, 1839.
Janosch, St. (German). Bee and Silkworm Culture. Leipsic, 1834.
Leibitzer, J. (German). The Culture of Bees and Silkworms. Pesth, 1834.
Eckart, D. (German). Manual of Bee-keeping. Leipsic, 1835. 2nd edit. 1857.
Floyer, K. A. H. (German). Principles of natural and experimental Bee-culture. Minden, 1835.
Mussehl, W. Ch. L. Rapport sur le Revenu de l'Apiculture à Ventilation. Neustrelitz, 1835.
N. (Ebener) (German). Grains of Gold for Apiculturists and Fruit Growers. Ulric, 1835. 2nd edit. 1836. 3rd edit. 1839. 4th edit. 1848.
Neider, J. E. (German). The most recent Discoveries in Rural Economy. Bamberg, 1835.
Uzdi, P. (Hungarian). The Experimental Bee-keeper. Kaschau, 1835.
Bertin. Instruction sur la Culture des Abeilles. Paris, 1836.
Jonke, G. (German). Theoretical and Practical Treatise on the Culture of Bees. Laibach, 1836. 2nd edit. 1848.
Klopfleisch, Ch., and Kurschner. (German). Bees and Bee-keeping. Jena, 1836.
Néméthy, J. (German). Bee-keeping ventilated. Pesth, 1836.
Neiderbruck, Oswald de. Aperçu exact sur la Culture des Abeilles. Mulhouse, 1836.
Kirsten, G. (German). Complete Treatise on profitable Bee-keeping. Weimar, 1837. 2nd edit. 1847. 3rd edit. 1858.
Lechler. (German). Perpetual Almanack of Bee-keeping. Stuttgart, 1837.
Neubert, J. (German). The best Hive for Everybody. Neuruppin, 1837.
Rolle, F. K. (German). The Bee (Poem). Strasburgh, 1837.
Stein, Th. (German). The Best Hives, &c. Leipsic, 1837.
Wollenhaupt, F. (German). Short Treatise of pleasant and profitable Bee-keeping. Lissa, 1837.
Fuckel, Ch. F. L. (German). My Style of Bee-keeping. Darmstadt, 1838. 2nd edit. 1846. 3rd edit. Giesen, 1854.
Rendu, V. Traité pratique sur les Abeilles. Paris, 1838.
Rudel, J. H. D. (German). Recent Report on the Robbing of Hives in Upper Silesia. Leipsic, 1838.

Vitzthum, A. (German). Monthly Journal of Bee-keeping. Landshut, 1838 to 1843.
Morlot, G. E. (German). Bee-keeping, &c. Bern, 1839.
N——. (German). Roman Bee-keeping. Gotha, 1839.
Thun, B. (German). Culture of Bees according to their Instincts. Passau, 1839. 2nd edit. 1853.
Kirsten, G. (German). Complete Dictionary of Apiculture. Weimar, 1840. 2nd edit. 1858.
Stern, J. (German). Treatise on the Culture of Bees according to their Instincts. Linz, 1840.
Habi, A. (German). The most recent Bee-keeping. Saaz, 1841.
Housset. Mémoire sur l'Amélioration des Troupeaux et des Abeilles dans les Landes. Bordeaux, 1841.
Kritz, A. (German). Against Vitzthum. Querfurt, 1841.
Thierry-Mieg. Mémoire sur la Culture des Abeilles. Mulhouse, 1841.
Poporsky-Jouravko. Notice sur les moyens employés en Russie pour élever les Abeilles. Paris, 1841.
Ebensperger, J. L. (German). Treatise of Apiculture and Horticulture. Nuremberg, 1842.
Gundelach, F. W. (German). Natural History of the Honey-bee. Cassel, 1842.
Kritz, A. (German). The Secrets of Bee-brood discovered. Leipsic, 1842.
Magerstaedt, A. F. (German). The Practical Bee-keeper. Sonderhouse, 1848. 2nd edit. 1845. 3rd edit. 1856.

(*To be continued.*)

Echoes from the Hives.

Selkirk.—'Will you be kind enough to send me your *B.B.J.* (for which I enclose six stamps)? I was very much pleased with your last number; there is so much sound information in it. I think I will try one of your bar-frames next year, and see how I come on. There are none in this quarter. Bee-keepers are all astonished when I tell them what I saw at Carlisle, and how you performed with the bees. I wish I was able to drive them from one hive to another as you did. I can assure you that I was highly pleased with your performances.'—Jas. Kemp.

Aberfeldy.—'I have much pleasure in perusing your *Bee Journal* since I got it, and assure you that your manipulations at the Highland Society's meeting at Edinburgh have created a much desired effect on the better management of bees. Our Highland districts are in general good bee-farming ones, although this year is such a failure.'—P. H.

Farnboro', Hants.—'My bees are all going on first class, at least I hope so. They are very busy carrying in pollen, and, although it is November 8th, they are going in loaded with it; I suppose it is from the ivy, which I thought was all over some time since. Judging from the reports in the *Journal* the season about here must have been good; being unable to extract heather honey the bees have choked the stock hives, besides what has been stored in supers. Super honey sells at about 1*s.* 2*d.* per lb. here, which *customers consider a good price.* My best hive (Hybrids) have stored about 96 lbs. altogether. Wishing you success for the future, and that your "subscribers may thrive like bees in a hive, and never sting each other."'—W. T. J.

Kirkburton.—'The "Slinger" suits me immensely. I only wish it was time for me to operate with it. When I first tried it, I laid hold of the handle with one hand, placing the other on top, which suggested the idea of a longer handle.'—*November 12th*, 1877.

'Profitable Bee-keeping.—I am extremely obliged to you for getting me a customer for my honey. I think, considering I am only a young beginner, I did pretty well this year. I have, when I get the money for the honey, made 2*l.* 17*s.* 6*d.* profit out of one stock of bees; I hope next year to keep 25 good stocks.'—W. H. D.

'Ligurian queen you sent has begun breeding, I think the only stock I have that is doing so.'—F. A. C.

Queries and Replies.

Query, No. 222.—*Ivy Honey.*—My bees ceased breeding very early in October; and though I began feeding slowly at once, there has not been an egg laid since; so I fear it will go hard with them. I find they have stored a good deal of syrup, and are now getting some honey from ivy on every favourable day, but the greater part of it is not sealed. Would you advise my slinging it out for fear of dysentery, or trusting to ventilation?

Cheap Hives.—I should be glad if you would also say in your next issue whether your Cottage Standard may be left to stand the winter in a very sheltered situation without external protection?—A. Perceval.

Reply to Query No. 222.—The stimulative feeding was evidently begun too late to be of any use. In pages 64-65 of the August number of the *Bee Journal* a warning note was given; and the September number rang with directions—'How to make the best of it' (viz., the bad season). Stimulative feeding in autumn is intended to induce bees to *continue* their breeding. When they discontinue naturally it is usually because the weather is wet or cold, and the income very sparse; yet an increase of the latter will prolong the breeding and enable the bees to store and seal over the surplus supplied. The ivy honey is harmless, as it will solidify (as a rule) very quickly after being stored. This is a peculiar property, and, if evidence was wanting, would tend to show the perfect fitness of things. Ivy is the last good source of supply; heather the next before; and heather honey toughens immediately, and can give off no moisture, while that from ivy becomes solid almost directly. A late large supply of honey of almost any other kind would require evaporating, and would be almost sure to produce dysentery in the hive. The cheap cottagers' hives, notwithstanding the detractions of those whose business it is to recommend and sell expensive hives, require no more protection than a straw skep. In a very sheltered position they require no protection whatever; elsewhere, what you would do for a skep, that do for the cheap hive. Narrow the entrances, pile up the quilt, and take care that all is kept perfectly dry.—Ed.

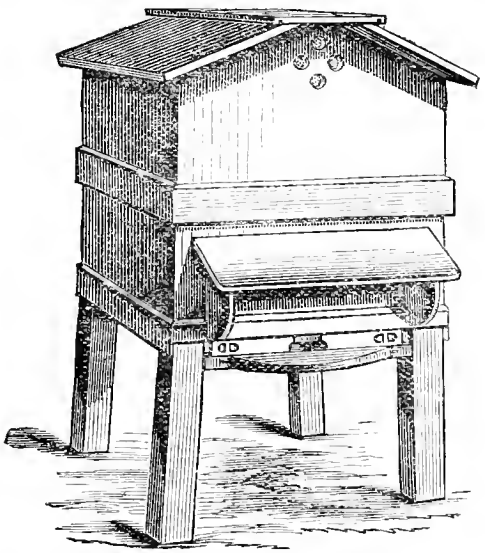
NOTICES TO CORRESPONDENTS & INQUIRERS.

Y. B. (*Yarnfield.*)—To remove six stocks of bees a distance of 100 yards only is a dangerous operation if a return of fine weather should take place within a few weeks, as the bees, when tempted out, would fly in numbers to their old locality. The proper course is to take them quite away for a mile or more, and leave them till they have forgotten their old stand, and then bring them back to the new one. During cold weather bees seldom fly more than a few yards from their hives, but a very fine day may cause them to extend their flight. If more convenient, the whole lot of bees may be moved backward or forward a yard or two on every fine day when they are flying, but they must not be moved to the right or left in a body, unless to a distance of a mile or so from their present stands.

The *Journal* can be had from our office as per advertisement on page 134 of November *Journal.*

ABBOTT'S STANDARD HIVE.

THIS Hive has been so seriously misrepresented under various names, in modern works, that we feel it incumbent on us to caution the public against being misled by the false statements therein contained. Indeed, from the gross and wilfully wrong description that has appeared, we should not be surprised to hear that sham 'Standards' have been foisted on the public to disgust them with its principles; and that it is one of these that is described in a work 'just published.'



To the Standard Hive, in its various stages of development, there have been awarded during the past four years no less than Eighteen First Prizes, and Four Silver Medals, including the Highest Award at the Alexandra Palace Show, 1876, as the only Hive that maintained its position as the best Hive for two consecutive years at the great Shows of the British Bee-keepers' Association.

Nine of the above-named Prizes were obtained during the past year, during which it has taken *First Prize* on *every occasion* where it has been exhibited in competition.

The Judges at all these Shows were experienced Bee-keepers, therefore the Awards were given to Hives which are the best for practical purposes.

Among the chief improvements to be found in the Standard Hive, may be mentioned the quadrupedal legs, permitting the sliding reversible floor-board (our adaptation), the shouldered top-bars, affording the greatest steadiness and accuracy, with the least amount of propolizing; the moveable dummies, now resolved into moveable Hive-sides; without some modification of which no Hive can be considered perfect, and the abolishment of the space above the frames. All these improvements, though adopted more or less by other Manufacturers, are entirely our own inventions, as may be easily proved by referring to the pages of the *English Mechanic*, *Mirror of Science*, and the *British Bee Journal*.

The Hive is complete in itself, has double walls, reversible floor-board, easily removeable, stands on four stout legs, is provided with a porch and set of slides for closing the entrance; has ten frames accurately made, self-adjusting, and ensuring the correct measurement round and under them, and that greatest improvement of all, the quilt, first introduced by us into England in lieu of the abominable 'honey-board.' The inside measurement of the Hive is from front to rear 17 inches at top, and 16¼ at bottom, and from side to side 15 inches. The front and back inclining outwards from the bottom renders the frames much more easily removeable. It is fitted with a Super-cover and Roof of the most practically useful pattern, and is well made, and when painted will last a lifetime.

These are the leading features which will be found commendable in this Hive; and proportionately as other *inventors* adapt or adopt them, making them dovetail as it were with their own ideas of what a Hive should be, so do their productions meet with commendation or otherwise. In outward appearance no alteration has been made in the Standard Hive since it was awarded First Prize and the Silver Medal at the great Crystal Palace Exhibition in 1875, and only such variation has been made in its interior as experience has warranted in our closer striving for perfection.

The price of this Hive, exclusive of Supers, will be, Unpainted, 30s.; well Painted, 32s. 6d.

All our Hives are furnished with Wax-guides to ensure straight combs.

ABBOTT, BROS., FAIRLAWN, SOUTHALL, MIDDLESEX.

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 57. Vol. V.] JANUARY, 1878. [Published Monthly.]

Editorial, Notices, &c.

JANUARY, 1878.

A happy new year to all our friends, and may it be a prosperous one. Christmas is past, and we trust it has been in the usual sense a merrie one, and that its hallowing associations have influenced all hearts. Christmas-tide is a glorious time, both spiritually and temporally, for all true Christians, sanctified by His coming who brought peace on earth, good-will towards men; and blessed as a happy occasion for the exercise of charity in its truest sense. It is the great occasion, and fittingly so, for the reunion of friends and families, the forgiveness of erring brothers, and the reconciliation of those offended with each other. What a happy time it would be for bee-keepers if in this Christian spirit all differences could be laid aside and buried for ever, that the New Year might witness a reunion which would be lasting and beneficial to the whole community!

These thoughts have arisen through the contemplation of the condition of the bee-keeping brotherhood we were mainly instrumental in forming at the beginning of the season 1874, called the British Bee-Keepers' Association, whose avowed object was the advancement of bee-culture, particularly as a means of benefiting the cottager; and of advocating humanity to the honey-bee. This Association arose entirely through the advocacy of the *British Bee Journal*, and flourished exceedingly while under its fostering care; but circumstances arose, which we do not wish to remember now, which severed the connexion, and the Association has been endeavouring to establish a journal of its own. The annual general meeting of the members of the Association took place on the 13th ult., when only one gentleman not of the Committee attended; the funds were found to be in a very unsatisfactory state, and the meeting was adjourned *sine die*, in the hope that other subscriptions would be forwarded; the hon. sec., recognising the hopeless condition of things, is about to resign his appointment in despair; and this, coupled with the significant fact that the meeting did no business, and did not elect any officers or committee for future service, favours our conclusion that the Association is in a moribund condition, and must shortly be 'wound up.' The Association numbered over 300 members, but, from causes best known to themselves, less than half responded to the secretary's application for subscriptions during the past year. The numbers, however, prove the interest that was once taken in the objects of the Association, and it is in the hope that the slumbering interest may be reawakened that these lines are penned.

Shall England be without a Central Association of Bee-keepers? We trust not; and we ask all interested to rally round us once again in an effort to enable us to restore so desirable an institution? Let us all cast aside the differences that have arisen, and, while forgiving those who have blundered, let us thank the Committee of the British Bee-Keepers' Association as a whole for the experience they have afforded, and on its ashes let us build anew an association that will stand.

While the *British Bee Journal* was the organ of the British Bee-Keepers' Association we promoted its interests in every possible way with our own pen, gave full liberty and space for the reports of the hon. sec. and others, kept our columns open for the ventilation of all subjects by its members, and *gave insertion to all its advertisements* WITHOUT ANY CHARGE WHATEVER; and we offer the same advantages to the new Central Association which we hope will arise.

It is not easy to write off-hand full details of a scheme for the establishment of an institution that will give general satisfaction, and we must therefore be content to offer a few suggestions which may be embodied in rules hereafter to be made, and which shall be considered the fundamental principles on which the proposed Association shall be based. This, it will be seen, is a necessary prelude, for unless fixed principles be set forth it would be futile to ask for support.

I. The Association shall be called The Central Association of British Beekeepers, whose object shall be—(as is well understood).

II. It shall consist of an unlimited number of

members, and the minimum subscription shall be Five Shillings.

III. All cottagers adopting the humane system of bee-culture shall be honorary members ;—(to be certified by the clergy of their parishes.)

IV. All declared or certified members to have free admission to all shows and lectures.

V. The Association to be managed by a Central Committee, aided by sub-committees in every town where local affiliated Associations exist.—(Number of committeemen can afterwards be arranged.)

VI. The Association shall hold a Grand Prize Show in a different town every year, to be held in connexion with a great Agricultural or Horticultural meeting, if possible; the order thereof to be determined by the votes of the sub-committees affiliated to the Association. (Don't vest all power in the Central Committee.)

VII. The Association to provide the necessary netting to enclose the exhibition tents, and loan it to the affiliated committees at a nominal charge per yard, to cover wear and tear. (Note. Providing tents *in toto* does not pay, as the cost of packing and carriage is too great.)

VIII. The Association shall provide illustrations for lectures, and draft lectures (Mrs. Tupper's Prize Essay, for instance) for their use, and assist in every possible way.

IX. The Association shall send out leaflets at the lowest charge per thousand; for gratuitous distribution—(similar to Crystal Palace Leaflets.)

X. The Association shall assist all local Shows whose committees are affiliated to them, in every possible way, to be hereinafter determined; affiliation dues, ditto.

Here we have given half a score of ideas which we feel assured would work well as rules; there are details as to the presidents, vice-presidents, patrons, &c., and bye-laws, which could readily be framed, and the whole could be made to dovetail with existing local associations and work harmoniously with them if funds for starting the machinery be forthcoming.

In this respect we are sanguine that there are at least fifty gentlemen amongst our subscribers who would invest a couple of guineas each to become life members of the Association; and we have little doubt but that several hundreds would subscribe annually the smaller amount if it were demonstrated that *bona fide* action is intended, and there would be donors to the prize funds in every locality.

As to the *locale* of the Central Committee we will suggest Grantham, in Lincolnshire, or a similar town, as the focus; and from the way in which the shows have been carried out there is evidently no lack of energy there, and, looking at the railway map, we find it is sufficiently central for the purpose. Around it lie Leicester, Melton Mowbray, Stamford, Boston, Sleaford, Lincoln, Newark, Chesterfield, Nottingham, Derby, Trent, Rugby, Coventry, and many other large towns, each of which would form a centre for others to focus on; and an outer ring would form foci whose radii would embrace nearly the whole of England. It is no argument against the proposal to suggest that distance is objectionable. Distance did not prevent Scotland sending exhibits to the Crystal Palace, nor London on several occasions sending to Scotland, America, France, and to all parts of England, where honours were to be won or bee-keeping stimulated; nor did it, or ever will it, prevent the agglomeration of exhibitors and visitors at any point named, provided the point be made attractive; and our experience in many a field has satisfied us that exhibitions of manipulation with live bees, if properly carried out, are sufficiently attractive to bring 'swarms' of visitors to the exhibition tents: and who can measure the influence for good that such exhibitions effect? Again, distance did not prevent the gentlemen of the Committee of the British Bee-keepers' Association, residing in Sussex, Kent, and at other distant places, from coming to London, at their own cost, to attend its meetings; nor will it, we are confident, prevent gentlemen of the Midland Counties acting in a similar way on behalf of the new Association. Distance is nought where the heart is in the work! We originated these exhibitions at the Crystal Palace, and by self or juniors have largely aided at every public exhibition of manipulation, save two, that has taken place in Great Britain to this date, and are therefore in a position to venture an opinion.

Who will help us now to establish a newly-modelled Association on the permanent basis proposed? When, in the early days of the *British Bee Journal*, we took heart and proposed the first Crystal Palace Show,—when alone we applied for and obtained the sanction and approval of the Crystal Palace Company, we were enabled, on this very day four years ago, to announce the first list of subscriptions (16*l.* 16*s.*) towards a Prize Fund, obtained from personal friends. By the end of March the sum had amounted to nearly sixty pounds, and by the end of July to eighty-eight pounds; and in the meantime, through the medium of the *British Bee Journal*, the British Bee-keepers' Association had been formed, and every subscriber to the fund was constituted a member thereof; and then the control passed out of our hands.

Now, after the lapse of four long years of public service and public life, it is our duty to again bring forward the claims of the science of bee-culture to the sympathies of bee-keepers and the public generally. It is a profitable

pursuit when understood; and no better means of instruction can be adopted than those set forth herein, and therefore, relying on the elasticity of public confidence, we again, as in duty bound as journalists, urge its claims. One hundred life members will ensure a permanent Association; these obtained, annual subscribers will readily come in, and avoiding the rocks which have wrecked the former venture, all will, we trust, be fair sailing.

'To be, or not to be, that is the question.'

WORK FOR THE MONTH.

January is usually considered a month during which the bees should be left in perfect quietude, and it will be well to leave them so when they are well packed and secured from snow, frost, and rain. But there will be some who have neglected these precautions, and a reminder will perhaps not be out of place. Christmas-eve gave warning of coming events, by bringing with it a sharp frost, and the evening of Christmas-day ushered in the first snow-fall that has visited us this season, and up to the present time (Dec. 28) there is every probability that it will stay with us, so that extra vigilance is commendable. Every precaution should be taken to prevent the escape of heat from the hives, for heat is necessary to life; and if it escape, the bees must generate more, or die, and if their heat-producing power is too severely tested, they wear out, or become afflicted with dysentery. When feeding is necessary, a little barley-sugar thrust in between the combs should be given, but no liquid food, unless in very small quantities, kept warm. See that there is no draught through the hive, and narrow the entrances, so that only two bees can pass, which means that it should be about half an inch wide and a quarter high. Look out for mice, which are great pests at this time of year, and effect lodgments where ingress is often thought impossible. An excellent trap for them is formed of a brick and two sticks; the latter are driven into the ground, four and a half inches apart, to stand four inches out of the ground, and a fine saw scarf is cut into each. A piece of thread, about six inches long, is then drawn through a soaked pea, and a knot is tied at each end. The thread is then slipped into the saw marks on the tops of the sticks, leaving the pea in the centre between them, and the brick is placed leaning on the thread, with the pea sufficiently under it to ensure a venturesome mouse's destruction if he attacks the pea, for in doing so he would be almost certain to bite the thread in two, and let the brick fall upon him. The great advantage of such traps is, that once prepared, they will stand for a long time, and the baits can be carried to them with very little trouble.

Tomtits are a great nuisance, and very destructive to bee-life; they may be caught in the old-fashioned bird-trap, made by boys with three bricks and a fall, but the latter should be of glass; or they may be destroyed in the little iron gins often used for mouse-traps—in either case dead bees are the best bait. If the frost should continue for many days, it would be well, where practicable, to examine the floor-boards to see if there are many dead bees upon them. In some hives it will be necessary to use a bent wire for the purpose, and, passing it round the floor-board inside the hive, draw anything that may be on the floor to the entrance. If any dead bees be found, they should be examined, and if dysenteric, the hive should be carefully watched, and if the disease increases, an artificial flight should be arranged, as per directions in a former number of *Journal*. Hives having the Standard arrangement of legs, &c., can be readily examined, by lowering the floor-boards. If at any time it is found that the cluster of bees reaches the floor-board, it may be concluded that they are well off, both in numbers and stores, and that they will take no harm. Weak stocks may be carried into a dark cellar (where no ray of light penetrates), but their entrances must not be closed, or they will worry themselves to death. If any ray of light shows itself, the bees will get out and fly to it, and will not return to the hive.

Now is the time for preparation to begin for the coming season. Bee-keepers should remember that hives and bee-fixings are too bulky to be made in quantity and stored, and they should therefore give their orders sufficiently early to enable hive-makers to complete them. There are numerous manufacturers in England, and this *Journal* is, and always has been, open to them, to illustrate or describe their hives, and to advertise them also; and those who will not avail themselves of the opportunities offered can scarcely expect to be remembered when hives and bee-furniture are required. Our present advertisers are, Mr. G. Green, with the Hartlip hive, Kent; Mr. R. Steele, with all kinds of bar-frame hives, Dundee; Mrs. Pagden, with all kinds of straw-work hives, Sussex; Mr. James Lee, with hives of every kind, Surrey; Edmundson Brothers, with a large and varied stock of hives, Dublin; Abbott Brothers, with their standard, and all other kinds, Middlesex; Isaac Hale, with the Italian bar-frame hive, Lincolnshire; W. Young, straw and wood hives, Perth; W. J. Pettitt, with his metal rack bar-frame hives, &c., Kent; and R. C. Blaker, with the improved Ifield hive, Sussex.

The list affords variety of choice, and among

so many it ought not to be difficult to be suited: but who shall govern public opinion?

At this time of year the planting of trees and shrubs for bee purposes should engage the attention of the apiarian, and for early spring purposes, the pollen-bearing willow, the palm in vogue on Palm Sunday, is one of the best. Last year we planted a couple of hundreds of them in March, and although they gave abundance of pollen, the transplanting was too late, and many have died; we, however, intend to fill up the gaps in the rows.

Raspberries are good for bees, and suckers should be planted wherever ground is available, as should also gooseberry and currant trees. Where garden-ground is limited, and meadows are near, it will be well to speculate in a few pounds of white clover seed, and with no evil intention to trespass on them, and improve the value of the crops. We were speculative in this regard while at Hanwell, and the owner attributed his increased crops to the bees, 'the yerbs were so good;' and he was right, for had there been no bees near, his 'yerbs' would not have had an initiative.

THE SHOWS OF 1878.

During the so-called 'dull season,' *i.e.* the time when bees are inactive, it is highly important that preparation should be made for the summer campaign against the blissful ignorance of the old school of sulphurcides. Moreton-in-the-Marsh, Gloucestershire, has been the first to awaken to the necessity for the preparation of an early programme; and it would be well if their 'fever' were 'catching,' that we might at once (say in February) publish the 'bill of the play' for the season. Next to 'put off death's counterfeit' is Ealing, the head-quarters of the Ealing, Acton, and Hanwell Horticultural Society, three villages forming an important district containing nearly forty thousand inhabitants, but where as yet there has been no exhibition of manipulation. There are many other places where shows are *contemplated*, but in which no action has yet been taken. May we urge upon associations the necessity for counting the cost of exhibitions before venturing to publish their prize-lists, or incurring heavy expenses, and procuring guarantees for the recoupment of the outlay intended. This may readily be done beforehand, while every heart is full of hope, and every mind bent on the object; but afterwards, if failure ensue from bad weather or other causes, it is not so easy to create enthusiasm, and promoters are often left in the lurch with the uncomfortable feeling that they ought to have thought of the possibility of failure before, and their ardour is for ever damped. During our fourteen years' citizenship at Ealing we had the honour of assisting at the numerous Volunteer Rifle contests that took place on the Ealing range; and although prizes were sometimes offered amounting to near 200*l.* (irrespective of expenses), there was never any difficulty in obtaining guarantors for double the amount required. A simple form was drawn out by which each guarantor undertook such responsibility as he pleased, the sums varying from twenty pounds to one pound only; and there was always not only the satisfaction arising from assurance of safety to the promoters, but the certainty that every guarantor would do his best to make the affair a success. After our experience we would suggest that in all cases where there is a possibility of loss, the amount should be assessed and divided into shares—say two hundred of one pound each—and these, it would be found, would be taken up by many who would not, or could not, subscribe to the prize fund, and would give them an interest in the concern that otherwise they would not have. Such a subdivision of responsibility could scarcely harm anyone, as the loss of each ten pounds on the whole hazard would only come to a shilling per share.

We feel these remarks to be necessary, as complaints are flying about of prizes withheld and printers' accounts left unpaid even from as long ago as 1876, which should not be possible, and we should counsel the removal of any hon. sec. who was guilty of such *laches*.

One other good result would be arrived at by the establishment of a guarantee fund, viz. the accounts of every show would necessarily be made up immediately afterwards, and the profit or loss thereon would be declared *at once*, instead of being allowed to run on and mingle with the general accounts of the year. The latter practice prevailed in the British Bee-keepers' Association, and our opposition to it while Treasurer caused the first rift in the harmony that prevailed until the end of the first Crystal Palace Show.

BEES' LEGS.—POLLEN GATHERING.

On page 119 of the present volume of the *British Bee Journal*, note 4 to the *Natural History of Bees*, by the Abbé Collin, we hazarded a remark on a subject which has had a good deal of our consideration of late, viz., the means by which the bees transferred the pollen grains from their tongues to the thighs of their posterior pair of legs. The engraving on p. 119 is a fac-simile of the sketch sent us by an enthusiastic correspondent; but it is not strictly correct, nevertheless it was sufficiently

so for the explanation by a lecturer of the subject in hand.

In each of the anterior legs of a bee there is a little moveable 'spur' which acts somewhat like a human thumb, inasmuch as by its aid a bee can grasp its antenna (as a man would his beard), and stroke it until clean, or otherwise, in good order. It has been observed that bees use the spur for this purpose, but it was not supposed that it had any other use; and but for the introduction of artificial pollen as a substitute for the natural product so craved for by the bees, it is probable that a further use for the wonderful little instrument would not have been thought of. Before artificial pollen came into use the action of the tongue when in a flower could not be seen, and it was thought generally that bees gathered the pollen with their mandibles, or with their front pair of feet, and passed it to their hindmost legs, where they accumulated it in the fashion so well known to bee-keepers; but their method of gathering was soon discovered when meal was offered to them, and the tongue was proved to be the member used. Anyone may, with the unassisted eye, when bees are carrying meal in the early spring, distinctly see the tongue extruded, and rolled about amongst the fine dust until it is coated with as much as the moisture on the tongue will permit, when with a whisk of the front leg it is instantly cleaned off and wiped on to the thigh, where, by repeated wipings, it accumulates in irregular form until the bee takes wing, when, hovering steadily in the air for a few seconds the legs are all brought under the body, where, by a very rapid movement, the pollen-paste, for paste it then is, is moulded into form, and the bee either goes home to its hive with its treasure, or seeks to increase its load by a repetition of the movements described.

In the Abbé Collin's *Natural History*, quoted above, the bees were credited with gathering the pollen with their teeth (?), from which it was transmitted by the first pair of legs; and in our correction of the error we alluded to the spur in the fore-leg of the bee as a means of cleaning the antennæ, and suggested that it was '*equally suitable as a means of clearing the pollen dust from the tongue.*'

This suggestion, although not taken up by any one on this side the Atlantic, appears to have been readily seized upon by Mr. A. I. Root, one of the ablest American bee-keepers and the editor of *Gleanings in Bee Culture*, a bee paper of inestimable value, here as well as there; and it is a great pleasure to us to know that so scientific and honourable a gentleman has been working in our own groove, and that he and we have come to the same conclusion on the subject.

In an article on 'Pollen,' in *Gleanings*, the editor says:—

'You have all doubtless heard bees humming about hollyhoek blossom, and perhaps most of you have passed on, thinking it was nothing strange, for bees are always humming about flowers. Suppose we stop just a minute and look into the matter a little. The bee, although on the wing, is almost motionless as he hovers about the dust in the centre of the flowers, and by eareful watching we may see that its tongue is extended to a considerable length. The tongue looks like a delieate pencil-brush as it sweeps about among the grains of pollen; and as the pollen adheres to it, and is from time to time put away somehow, we are led to infer that there must be something adhesive upon it. I believe the bee, when he starts out to gather pollen, does carry along a store of honey for this very purpose. Well, we will suppose he has moistened his long flexible brush-like tongue with honey, has spread it out and brushed it among the pollen grains, and then I will show* you what a funny machine he is provided with for getting the pollen off his tongue. There is a little blade (spur) as it were at E, that opens and shuts, and the bee, when its tongue is well loaded, just claps it into the groove or fluted eavity (M), then shuts down E, and gives its tongue a "wipe" so quickly that he leaves sleight-of-hand performers all far in the shade.'

[This is exactly as we have found it.—Ed. *B.B.J.*]

Further on our worthy editor says:—

'To tell the whole truth, I feel a little guilty about that article on pollen, and will try to own up to all I have stolen. The curious machine on the fore-leg of the bee was discovered about a year ago by Miss A. (one of our clerks), but I was not satisfied of its office until the *British Bee Journal* dropped a hint in the November number of its being used to clear the pollen from the tongue.'

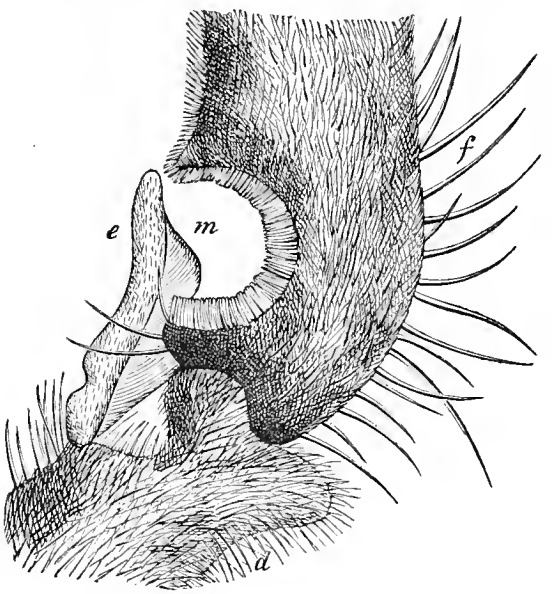
We are deeply grateful to our friend for acknowledging our share in the discovery; but we want to show him as well that 'the little blade,' 'the curious machine on the fore-leg,' was discovered somewhat more than *a year* ago, as the following extract from 'Shuckard on British Bees,' published in 1866, will prove.

Shuckard, in his chapter devoted to the 'General History of Bees,' says,—

'All the legs comprise the *coxa*, or hip-joint; the *trochanter*, which is a small joint forming the connexion between this and the next joint, the *femur*, or thigh; the *tibia*, or shank; and the *tarsus*, or foot. The latter consists of five joints, declining in length from the first, which is generally as long as all the rest united together; the first in the anterior pair, being called the *palmæ*, or palms; and in the

* Here are engravings of the bees' tongue and fore-leg; the tongue is, however, well described as a delicate pencil-brush, and is easily understood. The parts of the leg under notice, we have drawn and engraved, from actual observation, highly magnified. Our reference letters are therefore not the same.—Ed. *B. B. J.*

four posterior, *plantæ*, or soles ; the other joints are called *digiti*, or fingers, or tarsus collectively . . . The four anterior tarsi have each a moveable spine or spur at their apex within . . . Attached to this spur on the anterior tibia of all the bees, there is, within, a small *velum*, or sail, as it has been called. This is a small angular appendage affixed within the spur at its base. At the base of the palmæ of the same



legs, and opposite the play of this velum, there is a deep sinus, or curved incision, the *strigilis*, called thus, or the curry-comb, from the pecten, or comb of short stiff hair which fringes its edges. Upon this aperture the velum can act at the will of the insect, and, combined, they form a circular orifice. The object of this apparatus is to keep the antennæ clean . . .' &c.

Shuckard, however, like all authors, is all wrong as to the method of collecting pollen, and had not artificial pollen been invented the truth would have remained at the bottom of the flowers, for no one would have observed the *modus operandi*.

a Coxa.
b Trochanter.
c Femur, or thigh.
d Tibia, or shank.
e Spur, or velum
f Planta and strigilis.
g Digitus.
h Claw.
i Pulvillus, or cushion.

THE GLASGOW HONEY (?) PROSECUTION.

Our report in the November No. of the *B.B.J.* of the prosecution of a Scotch grocer for selling adulterated honey, professedly 'Pure Californian,' but in reality some stuff which contained fifty-seven per cent of starch glucose, has made a stir in America as if a bomb had burst and sent its splinters on all sides, and we are inquired of from several sources for the name of the firm who sent the vile stuff into the English market. In reply we can only say that the label bore the name of a firm hailing from 'Head Quarters' in New York, in connexion with another in Chicago, but from the well-known respectability of the said firm, the label is probably as vile a forgery as the exporter is a 'rascal.' The result, however, has been that bottled honey is a drug in the Scotch market, and our esteemed Glasgow correspondent assures us that the trade is quite broken up. He says, 'The grocer told me (Dec. 19) that before he was fined he used to sell about sixty jars per week, but since he has only sold three jars altogether, and the stuff has been withdrawn from the market by all respectable grocers.'

This is a curious statement, and shows how willingly the public will accept what is offered them in pretty gimcrack form, and how little they depend on their own judgment or taste. The rubbish found a ready sale, and was doubtless 'highly approved' until the food-inspector informed the world that more than half of it was adulterated, and then, presto! no one will touch it.

The people of England are being cheated daily in their purchases of honey in glasses and tins, with smart labels bearing high-sounding names, and purporting that it is from Hymettus, Narbonne, and other places historically famous, yet now non-producing, and actually importing honey for home use. The public little think that their finest Narbonne is imported in casks from the West Indies and America ; that it is sold to honey dealers in England at prices ranging from 28*s.* to about 40*s.* per cwt. and after clarifying and 'faking' it (whatever that may mean) it is bottled off and retailed at 1*s.* to 2*s.* 6*d.* per lb., according to the 'respectability' of the firm who vend it.

How long will it be before a bomb will fall amongst *them ?*

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris. Berger, Levrault & Co. 1875.

(*Continued from page* 140.)

Of the Queen or Mother Bee.—The sole duty of the queen is to lay eggs; that is to say, to multiply the species. She exercises neither authority nor command over the worker bees, and the name of 'Queen' is therefore incorrectly applied to her. The name of 'Mother Bee' correctly describes her position in the hive, which consists in laying eggs. The most that can be said of the bee in any other way is that she maintains order and activity in the hive ; for in a hive where a queen does

not exist, either in a state of maturity, or in the cells (in a state of larva or of chrysalis), the worker-bees become discouraged and lose a portion of their instinct; and, indeed, in every hive the activity is proportioned to the prolificness of the queen in her laying.

The queen is timid by nature; at the least alarm she flies and hides herself under the mass of working-bees. Even if you pinch her between the fingers she is unable to sting you. She will never even try to defend herself from a stranger bee that attacks her; though larger and stronger than the other she will never turn again to attack it, but allows it to pull at her wings and legs, and to try to sting her without resistance. She does nothing but lower her head, and screw up her body to save herself from being stung; and flies at once whenever she can do so.

Many people have affirmed that she is exceedingly vigilant, and that if the hive be tapped she will at once run to the spot whence the noise proceeds, in order to listen. The author's experience is different; and he has invariably found that tapping on the hive has only the effect of sending her running away as far as possible from the spot tapped upon.

The only case in which the queen exhibits courage is when she encounters other queens or fertile workers. The queens have so intense an aversion for each other, that even in a state of captivity, under a glass, the first queen that meets another seizes it with its teeth, just below the root of the wings, and springing on its back, brings its tail under the lower rings of its enemy's belly which it pierces with its sting. (1) Having accomplished this, it releases its hold and withdraws its sting, while the vanquished queen falls over and speedily expires. The old queens show the same aversion to the young ones even when in a state of chrysalis, but not during the earlier stage when they are only larvæ.

The egg containing a young queen remains in that state three days after being laid before it is hatched; and the grub that is produced therefrom remains five days more in the state of larva, when the cell containing it is hermetically closed by the bees; and seven days, and between eight and twelve hours after the closing of the cell, that is to say, fifteen days, and from eight to twelve hours from the laying of the egg, the young queen arrives at maturity. This period is occasionally prolonged as much as two days under unfavourable conditions of temperature, and with weak populations.

On the seventh day of her life the young queen arrives at puberty; and if the day be fine, she comes out of the hive in the early afternoon when the drones are enjoying themselves in the bright sunshine outside. She stops for a moment on the floor-board of the hive to look about her, then she takes a short flight in the air as if to reconnoitre, and then returns again to the hive. Finally, tracing several circles in the air she flies off to a height to which it is impossible to follow her with the eye. This first absence from the hive never lasts above eight or ten minutes. She soon returns to the hive and goes off once more after the delay of about a quarter of an hour. This second absence lasts about half-an-hour, and on her return she will have the signs of fecundation on her.

Mr. Thomas Moffatt, a celebrated English physician, who lived in the 17th century, was the first to advance in his work, *Theatrum Insectorum*, published in London, in 1634, the true theory of the fertilisation of the queen outside the hive. It was confirmed afterwards by Jarelst, professor of apiculture at Vienna, in 1770, and by Francis Huber in 1791 at Geneva.

The experiments made by the author in the years 1866, 1867, and 1868, on the fertilisation of the queen-bee, enable him to lay down the following facts as having been duly ascertained to be exact:—

1st. During the first six days of her life the queen-bee manifests no desire to quit the hive. She remains absolutely quiet in the hive during the warm hours of the day when all the drones are outside. Out of eight queens carefully watched by the author, one only appeared slightly impatient and fidgety on the sixth day after her birth.

2nd. But if you imprison a queen in the hive longer than six days, from the seventh she will show every sign of impatience to get out, provided the weather be fine. This impatience only shows itself, however, on fine days, between one o'clock and four in the afternoon when the drones are outside. If the drones be kept inside by bad weather, and indeed at all hours of the day when the drones are not outside, the queen will remain absolutely quiet in the hive.

3rd. A queen who is at least six days old will *almost invariably* be fertilised the first time she obtains her liberty to go outside. Sometimes, however, if the drones be few, she may go out several times and remain outside for a considerable time before the act is accomplished.

4th. A queen who has not been fertilised shows exactly the same instincts as regards going outside the hive, as do the drones. If the drones be outside she desires to go out also, if they remain quiet in the hive she does so too. If she be prevented from going out her agitation continues as long as the drones are outside, and no longer. If the weather be uncertain the queens generally seem but little disposed to go outside, precisely because the drones, who dislike especially any chilly weather, care but little to go outside also.

5th. A queen once fertilised is so for her whole life. She never again quits the hive except with a swarm.

Some exceptions, doubtless, may be adduced of queens who were ripe for fecundation before the seventh, and even before the sixth day of their lives. But these exceptions are so rare that they may be taken as proofs of the rule that has been laid down. The queen as a general rule commences to lay eggs on the eleventh day of her life. Out of eight queens observed by the author (three in 1866, and five in 1867) six commenced to lay eggs on the eleventh day. Two queens of the eight, however, commenced laying (in 1867) on the tenth day; and the author attributes this precocity to the fact that he had previously fed the two hives where they were born with about two pounds of honey each.

The author has been in the habit of making artificial swarms for very many years, but he never has found on any occasion sealed cells in less than thirty days after the swarm was taken from the old stock; and it is not often that it is found so early as this. Say, for example, we make an artificial swarm on the 31st of May at four o'clock in the afternoon, the first queen will arrive at maturity and kill her rivals eleven days and sixteen hours after the swarm was made, that is to say, on the 12th of June, at 8 a.m.; she will be fertilised and commence to lay her eggs ten days and eight hours afterwards; that is to say, on the *eleventh day of her life*, or on the 22nd of June at 4 p.m., and the first cells will be sealed eight days after the eggs are laid, or on the 30th of June at 4 p.m., or exactly thirty days after the swarm was made. (2)

Editorial Notes.

(1.) We have seen many queen fights, but never saw one queen sting the other on the abdomen. In every case the fatal wound has been given on the underside of the thorax apparently in the 'hip-joints' of the legs. The late Major Munn sent out an ingenious theory that a queen never stung another, but injected her sting-poison into the breathing pores (the spiracles) in the abdomen and caused her suffocation, but the theory has been proved fallacious.

(2.) The venerable author's observations on the fertilization of queens were doubtless written in perfect good faith, but probably he was not in possession of moveable comb hives, and consequently had not the facilities for minute observation which they offer. Had he been able to examine

When the fertilisation of a queen is delayed beyond the ninth day of its life, either by accident or design, she will sometimes commence to lay her eggs on the day following that on which she was fertilised.

When once the queen begins to lay she continues to do so throughout the summer season, unless excessive wet or drought hinders the formation of honey in the flowers. The amount of eggs she lays is invariably proportionate to the amount of honey collected and the strength of the population. The laying is almost always interrupted in October, and sometimes in September, to be resumed once more (though not so abundantly as in summer), in the month of January. The principal production of eggs commences again once more in the spring, at the return of the flowers. The queen, first of all, lays several thousand eggs of ordinary or working bees; she then begins to lay drones' eggs, but without ceasing at the same time to lay those of workers. The amount of drones' eggs laid is always proportionate to the strength of the ordinary population, but is no doubt commenced earlier, and is more abundant with some queens than with others. The mixed laying of drones with ordinary eggs is continued till the drones are driven out of the hive later on in the summer. (3)

While the queen is occupied in laying drones' eggs, the workers prepare a small number of royal cells, destined to receive the eggs which are to produce the young queens. This is not, however, invariably done; for in bad seasons, and in weak hives (in either of which cases it is not probable that any swarms will be sent way), no royal cells are constructed. The queen hardly ever lays eggs in more than two royal cells in one day. Often she allows intervals of two or three days to elapse without laying eggs in the royal cells, though strong hives will sometimes have as many as from ten to fifteen queens in different stages of growth in the hive (*i. e.*, as either eggs, larvæ, or chrysalis) at the same time in order to meet the requirements of successive swarms. (4)

It has been said above that the amount of eggs laid is always in proportion to the strength of the hive. Though some queens are less fertile than others, the above may be accepted as an absolute rule. The same queen, which in a weak hive shows but low powers of fertility, on being provided with an additional number of bees with plenty of honey to feed them, will at once commence to lay double or treble the number of eggs she did before. Nor is it more true that a queen is more fertile during the second year of her life than the first, as any one may be satisfactorily convinced by a series of similar experiments. It must not, however, be supposed that if several strong swarms of bees be united, that the fertility of the queen will suffice to keep up the strength of such an agglomeration of hives. This would be neither more nor less than to destroy the harmony that Nature follows in all her works. It may be added, however, that when the flowers fail in July and August, and the queen diminishes the number of eggs she lays in consequence, it is easy to increase it again by giving some artificial nourishment to the hive.

(*To be continued.*)

the combs in which young queens had been raised he would not have FIXED the DATES of the queen's several conditions so precisely (?). Young queens often begin to *lay* before the end of the sixth day of life, so must have left the hive for impregnation much earlier. Langstroth says she leaves the hive on the first fine day after being assured of her sovereignty by the destruction of all other princesses in the hive, so that the allowance of thirty days for sealed brood to appear is often liable to considerable shortening.

(3.) The early or late production of drones depends entirely on the position of drone-comb in a hive (*i. e.* whether the drone-cells are near to the brood-nest or not), the incoming of honey, and the populousness of the colony. The presence of drone-comb (except when it has been regulated by the bee-keeper) is accidental depending on the inflow of honey.—See Indices to *B. B. J.*

(4.) Queens do not lay eggs in royal cells, they lay them in ordinary cells, and the bees excavate around them, making three cells into one (as a rule). We have sometimes found queen-cells in such places as make it appear that the bees must have removed the eggs into them, but many observers do not believe they ever remove eggs from one cell to another. When artificial swarms are made, it is impossible for the queen to deposit eggs in the queen-cells which are formed in the hive from which she has departed, yet our author was able to prove that they *were* tenanted, and that the young queens in them came to maturity.

BRITISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of the British Bee-Keepers' Association was held at the Birkbeck Institution, Southampton Buildings, on Thursday, December 13th.

Present, Mr. Cowan (in the chair), and Messrs. Cheshire, Freeman, Glennie (Hon. Treasurer), Henderson, Hooker, Hunter, F. R. Jackson, Minson, and Fox Kenworthy (Hon. Secretary).

A very general feeling of regret prevailed that, besides the Acting Committee, only one Member of the Association (F. R. Jackson, Esq.) was present.

The Minutes of the previous Annual General Meeting (held at Alexandra Palace) were read and confirmed. The Hon. Secretary read an 'approximate' balance-sheet and the Report for the year. From the balance-sheet it appeared that the income of the Association from subscriptions from members, and donations towards the Prize and Tent Funds, had been 89*l.* 19*s.* 9*d.*, and the expenditure 76*l.* 15*s.* 10*d.*, leaving a balance of 13*l.* 3*s.* 11*d.* in the hands of the Treasurer.

The Report was to some degree a repetition of that given *in extenso* in our August number. It adverted to the endeavours of the Committee to get funds for a tent which might be of service for manipulating purposes at provincial apicultural shows; 15*l.* 6*s.* had been subscribed or this object. As the cost of an efficient tent would be more than double this amount, the Committee have been unable to carry out the proposition. It mentioned the correspondence that had taken place between the Association and the Caledonian Apiarian Society, with a view to holding an international show at Carlisle; but nothing decided had resulted from it. The Committee had then determined to postpone for the present year the metropolitan show, and to devote their energies to promote and encourage provincial shows; and during the summer several of the Association's bronze and silver medals had been awarded to the successful exhibitors. The Committee had received communications from the conductors of the Paris International Exhibition, 1878, and were by them informed that space to the extent of 222 superficial feet had been allotted for the exhibition of hives and other apiarian appliances; that applications had been received for a portion of the space from some hive-makers, and they would be pleased to entertain applications from others. The Report expressed the great regret of the Committee that so many of the members were in arrears in their subscriptions, and that for the last two years there had been an increasing decline in the number of members. The number at present was nominally 315, of whom 37 have joined during the current year; but of the 278 old members 165 were in arrears, and the payments of the remaining subscribers were 46*l.* 1*s.* 6*d.* With such an insignificant income their energies were restricted and embarrassed, and it was utterly out of the power of the Association or its Committee to adequately fulfil their responsibilities. The decadence in the number of the supporters of the Association had been a matter of anxious consideration to the Committee; and to stay its further decline, and to restore it to its previous position, they had arrived at the conclusion that it would be desirable to establish a monthly journal which might under certain conditions be issued to members free of cost, and

to the public at a low charge. They considered that it was necessary that this periodical should be one untrammelled by trade interests, that it should be controlled by an able and responsible editor. As the funds of the Association would not warrant them in venturing on this outlay, a circular had been issued inviting subscriptions from the members towards the establishment of the new journal. The Report stated that 67*l.* 10*s.* had been promised in answer to their appeal.

The Chairman having invited discussion on the Report, Mr. Henderson said that he thought that the members of the Association should be made aware that there was not among the Committee an unanimity respecting the desirability of having a new journal. He was of opinion that the publication of a new periodical, by dividing the interests of the bee-keeping public, might be inimical to the progress of apicultural science. The *British Bee Journal*, which at the commencement of the Association had been named as its organ, had done eminent services which should not be either forgotten or passed over in silence. That journal might indeed, with truth, be considered its origin: the friends of the editor had been the first subscribers to it; and the editor, by his pen and person, by the energy which he had thrown into its operations, and by the enthusiasm which he had shown at all the apiarian shows throughout the kingdom, had been its chief stay and support, and it seemed most lamentable that the identity of interest that had subsisted between the *British Bee Journal* and the Association should now be destroyed.

Several of the members in reply dwelt on the difference between a private and an official publication, and urged the necessity of the new journal being absolutely owned and controlled by the Committee. As the circular had only been issued a few days previous to the meeting, it was considered that there might be further subscriptions, the meeting was therefore adjourned, the Committee and officers being requested to retain their respective positions till the next meeting.

[The above did not reach us until some days after our first article was written. The total income for the year 1877 is, *exclusive* of the Tent Fund, which was subscribed for a special purpose, and should be kept intact, only 74*l.* 13*s.* There has been no Association Show, great or small, during 1877, yet the expenditure for the year has been 76*l.* 15*s.* 6*d.*, leaving a deficit balance of 2*l.* 2*s.* 10*d.* against the Association. All that has been done has been the awarding of several silver and bronze medals; a correspondence with the conductors of the Paris exhibition; and an unsatisfactory correspondence in regard to the International Show at Carlisle, and although it is said nothing decided had resulted from it, a great Bee and Honey Show actually took place, and thousands of persons were made acquainted with bee manipulation through the *enterprise* of private individuals. The remainder of the Report is made up of regrets, except that alluding to the attempt to establish a journal which should be untrammelled by trade interests, the editor of which is to be 'able and responsible,' and the capital raised by general subscriptions. Is there some huge '*private interest*' in the back-ground that hopes to obtain *a public position* with public money; and so achieve a new eminence to hail from?—Ed. *B. B. J.*]

DEATH OF THE BARON VON BERLEPSCH.

Our readers will learn with regret that the Baron Von Berlepsch, the great German apiarian, is no more. His memory will be honoured all over the world as one of the most practical bee-masters and as one of the greatest writers on apiculture of the present age.

The Baron was born on the 28th of June, 1815, in Langelsalzo, Thuringen. Even in the days of his childhood he displayed a marked partiality for bees. His greatest pleasure was, when he could elude the vigilance of his governess, to run to the apiary of a neighbour, Gottlieb Richser. When she desired him to return to his father's house, he would place himself in the midst of the bees, and playfully ask her to come and fetch him. On his seventh birthday his father presented him with a colony of bees. When he was ten he was the owner of four hives, which he took with him to Heroldishausen, to the house of the Curé Venck, who had the charge of his education. Since that time he has owned bees; and while studying law with Professor Doring (who was an enthusiast on bees) Mr. Berlepsch was permitted to bring with him a few hives, which were placed in the apiary of his professor.

In all the cities where the young Baron was sent to complete his studies, he took with him some colonies of bees. When his father died in 1841 he was the owner of 100 colonies, and had read a great many books on bee-culture, and had conversed with some of the best bee-keepers of his country. In his apicultural practice he received much assistance from Günther, the son of his gardener, whose powers of observation and of patience were as useful to him as those of Burnens to his blind master, Huber. His apiary was a model one, and as it was visited by apiarians from all parts of Europe, it might indeed be designated 'a school of apiculture.'

When the *Bienenzeitung* was published he studied the theory of Dzierzon, and six or seven years after, in 1853, he began to write articles on bee-culture. In these first writings he was opposed to Dzierzon's theory of the parthenogenesis of the queen. But Von Siebold and Leuckhart having visited his apiary to experiment on the eggs of workers and of drones, Berlepsch was convinced of the truth of the Dzierzon theory, which is no longer doubted by scientific men.

At the time when Woodbury invented the moveable-frame hive, Berlepsch was making a similar discovery. But his side-opening hive (which is yet the most used in Germany, and which had the honour of being selected as the standard by the Italian bee-keepers) is not as easily managed as that of Woodbury.

In 1860 he published the first edition of his *Bees and Bee-keeping*, which, although one of the best books published in Germany, was burdened with controversies with Dzierzon; in the second edition, published in 1868, he frankly acknowledged the errors he had previously maintained. Berlepsch had not the acuteness and the talent of Dzierzon, but his wealth permitted him to procure most of the books on bee-culture published in Germany: his leisure gave him time to read and compile from them what he thought worthy of note, and to have intricate and personal experiments made. It is therefore no wonder that it is one of the best and most complete works on bee-culture ever published. This second edition was the result of much labour, he having, it is affirmed, read upwards of 17,000 pages to make it perfect.

In 1867 he suffered from an attack of apoplexy which rendered him an invalid for the rest of his life, and the second edition of his work is the result of the valuable help of his wife, the Baroness Lina Von Berlepsch.

He died at Munich on September 17, 1877, at the age of sixty-two, after a long and painful illness.

PRIZE ESSAYS.

Dr. Ehrick Parmly, of New York, offers the following prizes, either in the form of money or medals of equal value, viz.—

Twenty-five dollars for the best Essay on the fertilisation of queen bees in confinement,—a subject of the greatest importance to bee-keepers, as, if fertilisation could be governed, the breeding of bees would be as interesting as the breeding of cattle and other animals, and the type could be as varied.

A second prize of ten dollars is offered for the best essay on rearing queens and re-queening an apiary,—another subject of importance; and we hope British bee-keepers will not fail to make their mark in the competition.

Dr. Parmly is recognised in America as one of the foremost investigators in modern apiculture; and, as will be found in another page, is seeking information on sundry other subjects, and we sincerely hope his inquiries will elicit that desired.

BEES AS WEATHER INDICATORS.

A writer in a North German contemporary suggests that in discussing the probabilities of a mild or severe winter, it might be worth while to pay respectful attention to the tacit prognostications of the little busy bee, says the *Farmer*. As a careful observer of their habits for many years, he contends that bees instinctively foretell the character of an approaching winter, by regulating their domestic architectural arrangements according to its degree of severity. This they do by more or less completely closing with wax the openings in the hive which serve for exit and entrance. On many occasions, and especially in 1870, the writer's anticipations of a severe season, founded upon these observations, have been fully justified, and from the hospitable appearance of almost 'open doors' this year he confidently predicts a winter of unusual mildness.

TRANSLATION OF EXTRACTS FROM *L'APICOLTORE* OF DECEMBER, 1877.

(*From a letter of Guzzi Bros., Milan, November*, 1877.)

Chrysanthemums (p. 365).—'We think it well to make known to our readers the use of the flower Chrysanthemum for bee-keepers, as an infallible means of driving away ants from bee-hives. This is how to proceed:—When ants are seen inside the hives, take some of these flowers, pulverise them, and scatter the powder between the diaphragms and inside the door. In a few minutes the hive will be abandoned by these insects which annoy the bees.'

Ants (p. 376).—*Apropos* of ants, in the same journal there is a quotation from the *Deutscher Bienenfreund* (p. 16):—'Sauppe furnishes more information about the new enemy of which we have spoken lately. It is the female of an ant, the *Mutilla Europæa*. The males are winged and live apart from the females. The latter are tremendous enemies of certain insects. Thus, for example, they insinuate themselves into a hornet's nest, and deposit their eggs with the larvæ, and, instead of hornets, ants are born.

'So this is not an insect having wings covered with a sheath (*coleottero*).'

Idem (No. 17).—'Steinberg has expressed the opinion that the new enemy above-mentioned might be the "dermeste," because several times he had met with it in hives. The "dermeste" does not hurt the bees at all, *and lives on the wax*.'

A Valuable Hint (p. 375).—'Vegetable wax is not soluble with ether, while bees' wax is partially soluble—about fifty per cent. Bees' wax is adulterated with vegetable wax, and ether detects this adulteration.'

The Bees on 'Strike.'—The English bees imported a few years ago into Australia are out on 'strike.' The busy bee of our childhood proves to be, under circumstances, a vagabond idler. For a year or two the newly-imported bees gathered honey all the day, and their hives yielded a goodly supply of the delicious food to the colonists who possessed them. The bees increased and multiplied. They roamed among the luxuriant fruits and flowers of the colony, keeping up an establishment in the hive; but after the experience of a few years bringing no honey home. The fact is, they discovered that the perennial summer of those parts of Australia in which they were located did not necessitate them to take care of the morrow. There being no winter to destroy the sources of their food, they ceased storing up honey either for themselves or their masters. In fact, they have struck work, and appear to have no intention of resuming it. Their hives are simply castles of indolence, so far, at least, as the storing of honey is concerned. The colonists sadly regret the demoralisation of the busy bee of their childhood and English homes.—*Farmer*.

FOREIGNERS AT SHOWS.

About bee shows, I do declare,
What very funny men there are!
At Wolverhampton one can't see
The right of foreigners to be.

If he can't see and others can,
Reason the thing with every man;
His may soon become quite clear,
And we be welcomed there next year.

Read these lines—they're good for eyes;
May help, next year, to win a prize:
Be glad to see High Wycombe there
Acknowledge it is just and fair.

There's funny birds and funny money,
Funny bees and funny honey,
Funny brains and funny eyes,
That can't succeed to win a prize.

There's bees as gentle as a fly;
There's bees will sting an ass and die;
There's bees that's worth a lot of money;
There's bees will get great stores of honey.

Foreign bees like English honey;
Foreign men like English money:
If English help is not at hand,
Do not despise the foreign land.

You see we live so far apart,
But hope we shall be one in heart;
Funny bees and funny men
Be spared to meet next year again!

W. M. (*a Foreigner*).

Organic Perfection.—Two young musical enthusiasts of Cambridge, members of two rival colleges, says a writer in the *Sporting Gazette*, were not long since discussing the merits of their respective organists. 'Ah,' said the first, a Trinity man, 'you should hear our man do "They came about me like bees, and are extinct as even fire among the thorns"! Now that's what I think the real test of a fine organist,' if he can do the buzz in "they came about me like bees."' 'Oh,' cried the other, impatiently interrupting him, 'ours can do the bees wonderfully too, but you should just hear him grin like a dog and run about through the city.'

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

LINCOLNSHIRE ASSOCIATION.

A great subject has cropped up in reference to our Association opening its arms to the adjacent counties, and so form one large centre for this part. I have received important communications from friends upon the subject, so strongly urging it, that I have resolved to bring the matter before my Committee, with a view to its being discussed at our next general meeting, to be held in January. Allow me, therefore, to express a hope, through your *Journal*, that all interested in the movement will kindly communicate their ideas and assist our Committee in their deliberations. I shall be pleased to give all aid in my power if I see that the movement would be the means of further helping forward the work I feel so deeply interested in.—R. R. Godfrey, *Treasurer and Hon. Sec. pro tem. Lincolnshire Bee-keepers' Association, Grantham, Dec.* 26, 1877.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Shall the Lincolnshire Bee-keepers' Association extend its borders over the whole of the Midland Counties, and also of Yorkshire and Lancashire, and so constitute one grand Central Association? I venture to suggest as a question for those at the helm of the Lincolnshire to weigh over. Myself a bee-keeper residing beyond its present borders, sincerely hope they will give the matter due consideration. From my own observations, as also those of others, of the thoroughly spirited way the Lincolnshire have hitherto carried forward the work, is a convincing proof of its determination to achieve the objects for which the Association was, at the outset, instituted. Perhaps if a little pressure were brought to bear upon the present Committee, they would take the matter in hand, that done, those of us who have had the opportunity of witnessing past doings of the Lincolnshire may contentedly wait the results. I would beg all our leading men in the above-named committee to at once throw their weight into the subject. We should then, I believe, accomplish what (to my mind) would prove in every way most beneficial.—A Notts Bee-keeper, *Dec.* 20, 1877.

[This communication, although dated 20th ult., arrived only on 27th.—Ed. *B. B. J.*]

FOREIGNERS AT THE LOCAL SHOWS.

I think your correspondent, 'J. W. N., Stafford,' is rather hard on us 'foreigners,' as he is pleased to style us; but I hope he will pardon me if I just speak a little plainly. In the first place, I received strong invitations from the honorary secretaries of the different shows I exhibited at (and some that I did not), such as this,—'Shall be very glad if you can send us some exhibits, to help make up the Show.' After I refused one I received a second invitation, saying he hoped I should alter my mind, as he wanted the folks down there to see what a 'Cottager' could do. I hope 'J. W. N.' will pardon me if I call him a novice, for he admits he had nothing fit to show, as the weather 'had prevented his bees from filling their supers satisfactorily.' On looking at the report of the Wolverhampton Show (*British Bee Journal*, October, page 103), it says, 'Mr. J. E. Briscoe showed 63 lbs. of super honey from one stock.' I saw the supers myself, and they were beauties. Now, if I do not make a mistake, Albrighton, where Mr. Briscoe resides, is only a few miles from Wolverhampton, so that if Mr. B. could get 63 lbs. of super honey from one hive by his management, why not 'J. W. N.?' or if he could not get so much as 63 lbs., if he knew how to manage his bees he might have got one or two supers of 20 lbs. or 30 lbs. filled satisfactorily, and so have saved his county from the reproach 'that local exhibitors were beaten out of the field by foreigners.' Then, again, whoever 'J. W. N.' may be, he must excuse me telling him that the gentlemen connected with the Show, and who were present at it, warmly thanked me for going, and congratulated me on my success.

Perhaps 'J. W. N.' may be surprised to hear that I had three natural swarms of bees in the first week of August, and that I had a quantity of *dark* honey collected at that time, some of which I showed in contrast with some extracted in June. I had no wish to go to Wolverhampton Show, but, as I was invited and decided to go, who can blame me if I took the best I had? But gentlemen must remember that prizes are *not all profit*, neither does it fall into the lap almost without effort. There is a deal of expense connected with it, such as entry fees, taking honey to and from railway stations, to and from the place of shows, railway fares, feeing porters—making it, at the best, nothing out of the way to a workingman like myself.—A Warwickshire Bee-keeper, *Weston, Leamington, December 12th.*

FOREIGNERS AT SHOWS.

Your correspondent, 'J. W. N.,' needs a little light as to how foreigners were at Wolverhampton Bee and Honey Show, for I think at present he is in the dark. The foreigner had a very kindly invitation to Wolverhampton from the Honorary Secretary, and if he could not come there, should be very glad if he would send something to help them to make a Show. They would take every care of things sent them, as they should like to make as good a show as they could. I am sorry any bad feeling should exist about the foreigners coming to Wolverhampton. I am very sorry that 'J. W. N.'s' bees have not done so well this year, but he is not the only one that has not had much honey this year; if he had we should have had him to contend with. I think different from 'J. W. N.,' and that our exhibiting will show other cottagers what can be done, and

stimulate them to try better than the mere telling them what others can do. Had I not seen I should not have believed so well. Several gentlemen said it was a credit to the foreigners, but they did not call us by that name, they had more respect for us, and thanked us for coming to help them. I am sorry 'J. W. N.' is a little disgusted, and he would have been much more disgusted if he had sent his supers to the Show, so he says, if others had taken the prizes. But I don't think he ought to be put out, as he did not exhibit anything. Well, bees will sting foreigners we know, or at least they will pitch on them, and so will bee-keepers, but some bee-keepers are nearly sting-proof; but I dare not think 'J. W. N.' means any harm; it is only a bit of his fun, for he says the neighbourhood of Wolverhampton is not the place for honey; but I find in the *Journal* for October, page 103, that Mr. J. E. Briscoe last year showed 144 lbs. nett from one stock of bees. That is not so bad, I think; and this year the same gentleman showed 63 lbs. from one stock in a bad season. I think that is better than Leamington or High Wycombe, for High Wycombe could only reach 45 lbs. from one stock; so if one can do it, others can if they manage their bees aright. A foreigner I am to supers of 144 lbs. weight, but am hoping I shall soon get acquainted with such, and when I do shall not be bad friends on that account. Had I seen Mr. Briscoe's supers, I should have thought what a good place it must be for honey, just the same as 'J. W. N.' thinks of Leamington and High Wycombe. If all bee-keepers could get as much honey as Mr. J. E. Briscoe, there would be plenty of work for the slinger, and Staffordshire would be the place flowing with honey, and it would find work for some folks to make jars to put it in. Hoping, 'J. W. N.,' that we shall soon hear from you again, for it is a long way to come from High Wycombe to Wolverhampton Bee and Honey Show. —W. Martin, *High Wycombe.*

SETTLING ACCOUNTS.

Mr. Godfrey is wrong in supposing that his is the only Society with unsettled accounts. I know another which has not only left some of the prizes awarded in 1877 unpaid, but still owes money due in 1876. Now, this is unpardonable. The old saying, 'Be just before you are generous,' is certainly applicable. It is a farce to draw up long lists of prizes, and thus tempt exhibitors to put themselves to considerable expense and inconvenience, only to find that the money they win is not to be obtained. I took some prizes at the Dorsetshire Shows, and the cash was ready as soon as the awards had been made, it having been announced beforehand that all prizes would be paid on the day of the Show. This is as it should be. Prompt payment encourages competition, but unbusiness-like delay in the finance department will certainly produce a contrary effect. My advice to Secretaries and Treasurers is, Make sure of your money before you offer the prizes. Bee-culture will not be advanced by bogus awards, which will vex well-to-do, intelligent, and honest apiarians, while they will also irritate and dishearten poor and plodding prize-seekers.—C. T., *Dec.* 24, 1877.

DEFAULTING TREASURER.

A DISCLAIMER.

In your November issue, p. 122, 'A Warwickshire Bee-keeper' says, 'It is a shame they cannot settle accounts from the shows before this time.' In an editorial note you very properly ask, 'What accounts and what shows are alluded to?' I cannot say; but as the writer, who is easily recognised, was an exhibitor at the Dorsetshire shows, and his name appeared in our prize-lists, I shall feel obliged if you will allow me to say that his remarks do not refer to Dorset. Winners who were present received their money on the show-days, and those at a distance were paid by an early day.

I should also like to say a few words on the subject of 'Foreigners' at local shows. I am decidedly of the same opinion as 'J. W. N.' in the December *Journal*, that Shows in connexion with local associations should be almost entirely restricted to exhibitors in their own districts, with, say, one or two 'open prizes,' just to show local bee-keepers what is being done in other parts of the country. It is our intention, during the coming season so to arrange our prize-lists as to avoid the possibility of 'Foreigners' having a 'walk over.'

I also agree with 'T. C. S.' that some means should be devised to ensure 'honesty amongst exhibitors.'—C. E. Norton, *Hon. Sec. Dorsetshire Bee-keepers' Association.*

CEYLON BEES — FERTILIZATION OF QUEENS IN CONFINEMENT — QUEEN REARING—CYPRIAN QUEENS.

As a subscriber to the *B. B. Journal*, I take the liberty to trouble you with a question or two which I hope may be thought to be of sufficient interest to ensure discussion through your columns or to me personally.

Some years ago Mr. Woodbury, who we call the 'Langstroth of England,' made an endeavour to obtain *Apis Dorsata* from Ceylon. I have lately noticed that an Italian bee-keeper is now trying to get *Apis Dorsata* from Java, and that Herr Cori is very enthusiastic over the great good that would come of its introduction in Europe.

I wish very much to learn what is known of its size, habits, and combs. Whether it has been kept in its hives in its native land, &c., &c.

Any information will be most thankfully received by me, and I doubt not by others also, on both sides of the Atlantic.

You will notice two prizes offered in the December number of our Journals:—

One for the best essay on 'Fertilization in Confinement,' and the other for the best method of rearing and introducing queens. I hope our foreign brethren will take an interest in these questions.

The present mode of rearing queens in nurseries is more rapid and economical than the nucleus system. This in connexion with the possibility of fertilizing in confinement will make queen-rearing a speciality apart from honey-producing.

The majority of bee-keepers are very incredulous about the possibility of such fertilization, but I am

confident that it has been accomplished in this country by at least two men. I am personally acquainted with one, and we have talked the matter over. His experiments the past season lead him to believe that it will prove the cheapest way for the wholesale breeder to fertilize large numbers, and it certainly is the only reliable way to breed any race in purity.

You will notice in Mr Hasbrouch's address before our National Bee-keepers' Convention (see Nov. *Am. B. Journal*), his faith in the process assure to supplant the open-air system.

Should this prove to be perfectly practical, we shall then have full 'dominion over' this 'fowl of the air.'

Is the Cyprian bee carefully bred by any one in England ?

Who do you consider the most reliable breeder of Cyprians? What is the price of queens? Your opinion of this bee ?

Now I fear your patience is exhausted; so I will close with wishes for your success, and asking pardon for the trouble I am giving you.—EHRICK PARMLY, 19 *West 38th Street, New York, Nov.*, 19, 1877.

PASTURAGE FOR BEES.—No. VI.

(*Continued from page* 146.)

Lime or linden-tree (*Tilia Europæa*). This splendid honey-tree is also called bass-wood and white-wood, and is one of the most beautiful and most useful of our forest trees. Planted singly it blooms in about six years, and is said to live over two hundred years, with a trunk eight to twelve feet in circumference, and is a tall, graceful object, frequently growing to the height of seventy to ninety feet. It flowers in July, and lasts about twenty days; their fragrance, though powerful, is delicious. The linden was probably introduced into England by the Romans. The true English name is the lime or linden-tree, a contraction of the Dutch and German name, which alludes to the bark being employed for making cord and other lines. This tree has no relation to the true lime, which is a citrus, nor to the earth called lime; so it is an absurd corruption of the name to call this tree lime, now generally applied to it in this country.

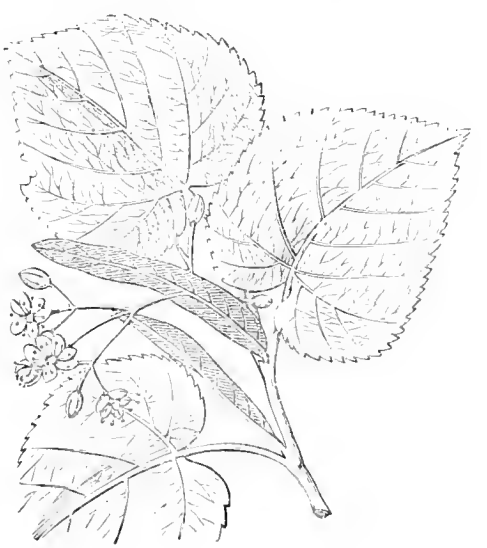
The usefulness of this tree is very great. Its extreme white wood is turned into bowls, bread-plates, &c. Its sprays are woven into baskets; it furnishes the cutting-board to shoemakers, and the sounding-boards of pianos. It is largely used for carved work : Grinling Gibbons's beautiful carvings are of this wood. From its inner bark the mats woven in Russia, and a few in Monmouthshire and Lincolnshire, and so well known as *bast*, are made. Three millions and a half of these mats are annually exported from Russia. In southern Europe hats are made of bast, and in Russia the upper part of shoes, and their soles are made of the outer bark of the linden. Fishing-nets are made of it in Sweden, and in Carniola the shepherds have their usual clothing formed of a coarse fabric into which it is woven. The wood, when made into charcoal, is employed to form crayon pencils, tooth-powder, and gunpowder.

The flowers abound in honey of a beautiful golden colour and good flavour, and are as valuable in some districts to the apiarian as is the heather in other localities. The 'Kowno honey,' so highly valued on the Continent for making liqueurs and in compounding medicines, is gathered by the bees from the extensive linden forests near Kowno, in Lithuania. So celebrated is this honey that dealers try to imitate it by bleaching common honey by steam.

The linden-tree also produces a great quantity of honey-dew in some seasons ; both from a secretion from the surface of the leaf, occasioned by some atmospheric stroke, which has injured their health during the oppressive heat of the dog days ; and also a deposition from the body of the aphis (*Aphides salicis*). This fluid, which is scarcely inferior to honey in sweetness, but is of a dark colour, issues in limpid drops from the abdomen of these insects, not only by the ordinary passage, but also by two setiform tubes placed, one on each side, just above it. Their sucker being inserted in the tender bark, is without intermission employed in absorbing the sap, which, after it has passed through the system, they keep continually discharging by these organs, by a certain jerk of the body, which takes place at regular intervals, they ejaculate it to a distance.

On July 21st, 1876, I was in Leek churchyard, around which, more than fifty years since, were planted rows of linden trees, and underneath these trees the flags were wet over with honey-dew, and I observed a shower of honey-dew descending in innumerable small globules, and extending beyond the trees, the leaves of which were covered with *aphides salicis*. My clothes soon began to be sticky with honey, so I called a friend that lives near, and told him to put some *buckets* under the trees, as it was a land really flowing with honey. The happy humming noise of the bees could be heard at a considerable distance from the trees, sometimes nearly equal in loudness to the united hum of swarming.

Such being the great utility of the linden, Pliny justly speaks of it as 'the tree of a thousand uses.' The flowers are profusely numerous, and are so peculiarly borne from the centre of large yellowish-green bracts, that I send you a drawing of this mode of inflorescence.



The name of the first efficient inventor of botanical classification was derived from this tree. Lind is its Swedish name, and Linnæus was applied to the earliest ancestor who bore it, probably because his dwelling was sheltered by linden-trees.

The principal limes or linden-trees we have in England are the small-leaved (*Tilia parvifiora*), common lime (*Tilia Europæa* or *Tilia intermedia*), and the broad-leaved lime (*Tilia grandiflora*).

Wishing you, Mr. Editor, and all the readers of our *Bee Journal*, the compliments of the season, &c.—Wm. Carr, *Newton Heath Apiary, near Manchester.*

(To be continued.)

UNTIMELY DRONES.

About 11 o'clock to-day (Dec. 17) the sun broke out, and very shortly afterwards bees came out and flew humming round. As it was now mild and very warm, in fact nearly like a summer's day, I thought I would uncover my hives and let out any moisture which might have collected in them and give a little fresh air. On opening the top of a straw hive containing a young queen, daughter of the Ligurian queen I got from you, and which was hatched on or about the 12th August last, judge of my surprise at seeing two drones pop out of the hole at the top amongst the bees. I stared in astonishment, but could not get over the ugly fact; there they were lively enough. I looked for some minutes and saw about a dozen in all, some of which I caught and herewith send you. My fear now was that the young queen had not met with the drones, and consequently would not be impregnated. Yet, although I have seen them all along whenever the weather allowed them to come out, I never, until to-day saw a drone since just after the queen was hatched, and surely if she is a drone-breeding queen, they would have been seen before now. On referring to my book, I find an entry on December 2nd which is as follows: 'Fine sunny day, and bees flying about merrily,' and on many other occasions I particularly noticed this hive, expecting to see black bees amongst them, but up to now the bees are all well marked, and a fairly good numbers of them too. They were fed slowly with syrup all the autumn, and in short have never yet been long without, as the season was a wretched one about here.

Will you kindly say in your next *Journal* whether I am right in my surmise, or how you account for the appearance of drones at this untimely season, and what is the best thing to do with the stock in question. —W. Carlton, *near Sheffield*

[The young queen having been hatched as early in the year as the 12th of August, doubtless persisted in seeking a mate until she fell a victim to some voracious bird, or was beaten down by the cold rains or the wind then prevailing. Normally, drones were all dead at that period.

It is barely possible that her youthful majesty may have survived her disappointments, and is a drone-laying virgin queen, which she will remain to the end of the chapter. It is, however, far more probable that the queen was lost, and that a fertile worker has taken her place and is wasting the energies of the colony in breeding useless drones. In neither case would there be any addition to the number, or alteration in the colour of the workers.

We see no help for it now but to unite the bees to an adjacent stock—not an easy—and often not a profitable task at this late time, if performed in the usual way. Probably the cheapest way out of the difficulty would be to set the stock about twenty yards from its stand, and on a fine mild day, open it and leave it to be robbed by the Ligurian stock. You can remove a good portion of the honey and comb, and cage the Ligurian queen upon one of her own combs on cells containing honey, and having sprinkled the combs remaining with the fertile worker, with scented syrup the robbing will go on cheerfully, and the majority of the fertile worker's attendants will spontaneously unite with the robbers whose hive it is understood should be near the stand lately occupied by their own.—Ed.]

FERTILE WORKERS.

Your far-fetched article in your last impression relative to queenless hives, 'Fertile Workers—Whence come they?' I have read with deep interest, as it individually applies to myself, simply because I have a stock of bees queenless, and I have been advised by a bee-keeper and naturalist to let them remain, as he says they will 'form' another queen. Now, reviewing his advice and your argument, I cannot see how it is possible for the bees themselves to change their sex or elect another queen, provided there is no 'royal blood' left in the comb to be hatched. Then, again, if in the autumn all the male bees or drones are destroyed, how is the fertile worker or queen impregnated? I can understand keeping hens without a cockerel, the former will lay eggs, but of course will not hatch and produce chickens. Again, I cannot think there can be such an imperfection in nature as when a queen is by accident or otherwise killed, or dies naturally, the whole community which she governed is to come to grief. Goldsmith, in speaking of the bee, says that the common bees are parents themselves, that they deposit their eggs in the cells which they have prepared, that the females are impregnated by the males, and bring forth a progeny which is wholly their own. Experience has taught me that a hive of bees without a queen have no energy, and will not assume their former industrious habits which they hitherto had done. I think yours is a question to which all bee-keepers should 'throw in their mite.' Thanking you for the past, &c.—D. L., *Rochford, Dec.* 19, 1877.

[When a queen-bee dies, the bees in the hive will raise another, if there be worker-eggs or young larvæ in the cells which they can metamorphose. By worker-eggs are meant eggs that in their natural course would become worker-bees. A queen-bee hatched at a time when, through the absence of drones, fertilisation is impossible, will remain unfertile in the accepted sense; yet, like a so-called *fertile worker*, she would be able to deposit eggs that would hatch into life and become drones, or male bees. There is no analogy in this respect between the eggs of birds and those of bees. Birds' eggs cannot come to life without having been impregnated; the eggs of bees, whether deposited by fertile workers or virgin queens, hatch into life without impregnation, but they invariably become drones when developed, and are useless to the hive. This may appear 'far-fetched' to our correspondent and his 'naturalist' friend, but it is essentially true. It is not pretended that the bees can alter their sex, but it is suggested—*all worker-bees being undeveloped females*—that they may possibly attain further development by partaking of the kind of food that developes a newly-hatched larva into a *perfect* female or queen. Fertile workers undoubtedly exist at times in hives, and they deposit eggs, which become drone-bees, yet are they utterly incapable of fertilisation. They are just sufficiently developed to be able to deposit a few eggs, but

not sufficiently to attain the further pre-eminence of which a queen only is capable. When a queen is suddenly removed from a full hive, the bees raise, perhaps, a dozen young queens, when one only is required; yet eleven of them, unless they lead off swarms, perish by the act of their ruthless eldest sister, and that, too, before her marriage has taken place; so that if, on her wedding trip, she gets lost or killed, the hive is positively left without the means of procuring another sovereign. This would appear to be an imperfection—but is it? Goldsmith simply propagated the errors of former writers; he is no authority on bees, and the assertions mentioned are now known to be absurd. Few are aware of the mischief done by books which have propagated the errors of former writers and invested them with an appearance of truth, and only those who become public exponents of *truth* can form an idea how old errors are beloved and adhered to even in the face of experiences that ought to convince almost everyone.—Ed. *B. B. J.*]

TRANSFERRING COMBS TO BAR-FRAME HIVES.

One of the greatest difficulties beginners meet with in adopting bar-hives seems to be that of transferring *combs* to bar-frames. This may be simply done by first cutting the combs to fit into the frames, and then *keeping them in their places with common elastic bands.* The bees will afterwards attach the combs to the bars.—Arthur G. Danyell, 135 *Via S. Niccolo, Florence, Dec.* 14, 1877.

DESTRUCTION OF BEES.

During the past year I have not taken the liberty of troubling you with answering any query on bees, but, with your permission, I will do so now.

The 30th of September was fine but very windy. About 3 P.M. I opened one of my Stewartons for the purpose of showing the queen-bee to a friend. She was soon discovered on the very first comb brought out, to the intense delight of my friend, who had not seen one before. In about ten minutes the frame was carefully replaced, and I noticed that there was quite a hum—of what I took to be recognition—by the bees in the hive, although I had not perceived any commotion during the temporary absence of the queen. Under the impression that all was right my friend and I left the apiary, and after about a quarter-of-an-hour's chat at the garden-gate I returned to the hive, but only to be surprised at finding a number of bees dead and dying under and about the alighting-board.

This destruction went on; and towards dusk I lifted up the hive, when lo, the floor-board was covered with dead bees. I brushed all off into a tea-cup, and left them for the night. The next morning the floor-board was again covered. I cleared up all dead bees and found I had a good-sized breakfast-cup full. I then put on a bottle of feeding-syrup, and this had a decidedly quieting effect. All seems to have gone on well since, but I dare not disturb them in the least for fear of a repetition of the mischief. Now whatever could be the cause of such an onslaught under such circumstances?—W. Child, *Ilkley, Leeds, Dec. 8th*, 1877.

[The first impression is that the opening of the hive produced robbing, which was not recognised; otherwise we cannot account for it.—Ed.

THE STEWARTON HIVE.

Your 'Renfrewshire Bee-keeper' deserves the thanks of all bee-keepers for his very lucid and able article on the management of the 'Stewarton Hive,' in the November number of the *Journal;* but as his remarks principally apply to those who are commencing its use he might perhaps be induced to favour us with something equally valuable and practical on its future management, and in such time as to enable us to make use of his instructions in the coming season.

Although the Stewarton had not been heard of in this neighbourhood before March, there are now no fewer than seven stock boxes tenanted by bees, distributed amongst four apiaries. The owner of one of them conducted his apiary on the principles advocated by Mr. Pettigrew, declaring that that gentleman was the only sensible writer on bees in this country. He has, however, found reasons for considerably modifying his opinions, and he has given practical effect to the change by completely discarding the system.

For the introduction of the Stewarton into this locality I acknowledge my indebtedness to a valued and experienced contributor to the pages of your *Journal.* All the stock boxes and supers alluded to above have been supplied direct from Mr. Allen, of Stewarton; and I need scarcely add that, so far they have given us entire satisfaction, whether as regards exactness of workmanship, or ease with which they can be manipulated.

The honey season here has formed no exception to the general lament of scarceness. At the time when stocks ought to have had a good supply of honey laid up for the winter they were just at starvation point.—W. C., *Ilkley, Yorkshire.*

CALIFORNIAN HONEY.

I have just received from a lady friend who is a bee-keeper a tin of honey (?), of which I enclose a sample. The gross weight of it is 2lb. 2oz., and from the tin being very thin and perfectly filled, I presume the honey contained therein weighs as nearly as possible 2lb. avoirdupois. The article is packed in the same style as Australian meats, in a circular tin 3⅛ inches high, and 4 inches in diameter. The label, which is pale blue-and-white on a scarlet ground, runs as follows:—

CALIFORNIA
ORANGE BLOSSOM HONEY.
WARRANTED PURE.
SAN FRANCISCO, CAL.

Opposite to this label is a trade-mark, a kind of winged hound, and under it the name of the firm.

The retail price of this article is 1*s.* 4*d.*, which being interpreted, means, I presume, 10½*d.* wholesale, that being the price charged by the importer to the retail grocer. Supposing the importer only to get a profit of 18*s.* per gross, the Californian shipper would receive 9*d.* per tin, which amount by freight and other expenses would be reduced to 8*d.* And as the tin, label, and packing would cost at least 2*d.*, the actual 2lbs. of honey could only have realised 6*d.* to the exporter. Respecting the

genuineness of this article I will offer no opinion, as it is the first sample of 'Californian Honey' that has been brought under my notice. I can with truth say, that I have within the last thirty-six years seen and tasted many hundreds of samples of honey from various countries, also from different parts of England, but never any at all like this. If genuine, the supply adequate to the demand, and English honey consumers are satisfied with its quality, all I can say is, the sooner the name of British Bee-keeper becomes extinct the better—so far as profit and loss to himself are concerned. If this is what it is labelled, I for one would not give a penny a-pound for all the 'Pure Orange Blossom Honey' in California. If it is not honey at all—it is a most infamous swindle upon the public, the perpetrators of which should forthwith be brought to book.—SAMUEL WYATT, *Westbrook, near Tenbury, Worcestershire, Nov.* 30, 1877.

[It is certainly the nastiest stuff we have ever tasted under the name of honey.—ED.]

TOADS.

I am sorry to differ from your correspondent C. H. Edwards, but from my experience I am convinced that the toad is the enemy, and not 'the good friend of the apiarian,' C. H. Edwards would have us believe.

This last summer having watched one devouring the bees as they came home in the evening laden with honey, I was seized with a desire to know what damage a single toad would do at a meal; so waiting patiently till one had feasted himself, I caught him and—well it was rather a nasty job, but there was no other way—I dissected him, and found no less than twenty worker bees undigested in his maw, and to his credit, I must also add, an innumerable number of flies and caterpillars, especially the gooseberry caterpillar; but I cannot say I found the hair-like tongue your correspondent describes as piercing its victim.

The toad has a wonderful tongue truly, but it is more in the rapidity with which it is used than its shape, which is somewhat the shape of its own head; but for this marvellous power of darting out its tongue and licking up its prey, it would have little chance of securing flies and such-like insects, for in all its other movements it is decidedly slow.

But to return to the subject, had there been no toad would these bees—as your correspondent thinks—have been sure to die from the chill of the evening overtaking them? I venture to think not, but on the contrary, that the majority in fine weather would, with returning morn, regain the parent hive; and I believe there are plenty of apiarians will bear me out in this.

The toads appear in the evening when the bees are returning home. At this time of the day numbers fall to the ground on their first attempt to reach the hive, and should a toad be near no second trials would be allowed. This daily occurrence cannot but be a serious loss to the apiarian.

Nevertheless, I do not wish to advocate by any means the destruction of toads, but simply their abolition from the neighbourhood of the apiary. Very useful, no doubt, they are in a garden where no bees are kept, therefore I say to bee-keepers give them away, and many will be glad of them or throw them away, but do not destroy them.—E. H. OLDHAM, *East Barnet.*

QUICK DRIVING.

At the close of the honey season I save bees from the brimstone pit whenever I can obtain the permission of the owners to do so. The bees thus obtained I utilise, either by forming new stocks, or strengthening weak ones that may require it. While following my usual plan this last autumn, a case of what I consider to be very quick driving came under my notice, and as the idea I gained from this operation may prove useful on future occasions, I send the following particulars of the case for the *Journal.*

In last September a cottager near here agreed that I should have the bees he had intended to 'put down' (that is 'smother') if I would take them out of the hives. He had six stocks, all in skeps, and wished to keep half of them for wintering. I went to his house one fine afternoon during my holidays, and giving each stock a slight puff of smoke from the quieter, proceeded to judge their weights by lifting them, and then turned each one up to gain some little idea of the state of the combs and bees. The owner having decided which stocks he would prefer keeping for wintering, I selected one of the others for immediate operation, and carried it about forty yards from its stand. In driving I generally place the hives so that their edges touch all round for the first minute or so of the drumming, and then raise the upper one to the position for open driving; when I raised it in this particular case I noticed that, without thinking, I had placed the lower one in such a position that the sun's rays penetrated *directly* between each comb to the bottom of it, and filled the skep with a strong blaze of bright light. The bees were extremely lively, not half-a-dozen attempted to fly, but all ran up into the empty hive with alacrity, and in ten minutes after the drumming began I had driven all the bees, and taken the comb out, and so completely had the driving been done, that on taking the combs out not a single bee was found on them, or in the hive. The time occupied by the whole operation (from smoking the bees till the bees and combs were all out) was not more than fifteen minutes, the shortest time I have ever known such work require, for before then it had generally taken me from twenty to thirty minutes, or even longer, to empty a skep of bees and comb. The skep operated on in this case was about 12 inches diameter and 9 to 10 inches deep, inside measurement; it was full of comb, contained a fair quantity of bees, a little sealed brood, and from 6 to 8 lbs. of honey as near as I can judge.

I am inclined to the opinion that *the warm, bright sunbeams entering so directly into the hive caused the bees to leave their home much sooner than they would otherwise have done,* for since then I have driven several stocks, but in no case under such favourable circumstances as regards the sunbeams, and none of the operations have been so quickly performed. What is your opinion of the case? Do you think the idea worth following out? I intend, if possible, to test it in my driving operations another season.—ISAAC LAKE, *Criftins-by-Ellesmere, Salop.*

BEE-KEEPING.

Prize Essay by Mrs. E. S. Tupper.

(*Concluded from page* 144.)

Those who are Italianising large apiaries, or rearing queens for sale, need no advice in the matter, yet may be interested in some items of my experience. I have succeeded better in rearing queens in moderately large hives than in the small ones generally used for the purpose. I now have my nucleus hives, containing three frames, the size of my large hives. A hive containing twelve frames, which can be divided into four parts at will, is very convenient, the entrance into two of the parts being at the ends, and in the others at the sides. Such a hive is warmer than a single nucleus, which is important in the early part of the year.

If such a hive contains a pure Italian queen, and she be taken from it in May, there will be eggs in each of the four parts when the dividers are put in, and from thirty to forty queen-cells will be started at once. In ten days as many of these as you please can be cut out and given to the hives, but four or or more should be left in it. The young queens hatched in these hives are very sure to mark their place when they go out for their excursions, as the size and entrance make it peculiar in appearance.

Much complaint is made that the whole colony is apt to go out from a nucleus hive when the queen leaves for impregnation and does not return; thus queen and all are lost. There is a sure remedy for this: Bees never desert a hive large or small, while there is brood in it. If, then, a frame containing eggs and larvæ be given to the small colony from another hive, about the time the queen will hatch, the bees will not desert it. Some have trouble in making the bees build more than one or two cells in these little hives. This is because they do not have a large proportion of *young* bees in them. The young bees of the current year are the ones that work the wax and build queen-cells. They may be seen before they are twenty-four hours old at work on them. Keep plenty of bee-bread and honey in the small hive, and supply it with water and young and hatching bees, and you will have numerous cells.

Be always sure that, in the hives where you are rearing queens, there are no eggs except from a queen of undoubted purity. It has been declared impossible for bees to remove their eggs from one cell to another, but I now know that they do so. Last year I put into each nucleus hive, a frame containing eggs, while the other combs, full of honey and bee-bread, were those preserved from hives from which the bees have been taken, and which had been all wintered in a cold room. By no probability could an egg have been in these, yet repeatedly were queen-cells built in them and perfect queens hatched from them. I do not pretend to say how the bees remove so delicate a thing as one of those little eggs without injury; but is it really any more wonderful than some of their other operations?

I have reared queens every week from the last of April to the last of October, and could perceive no difference in size or colouring at the different seasons; but out of eighteen reared in April last, only two became fertile; and of twenty-two reared in October, all but four were lost, while nearly all those reared in May, June, and July, were impregnated.

I do not find the pure Italian queens larger in size than the common ones; but queens reared from a pure Italian mother, fertilised by a common drone, are often very large and handsome. The colonies of such queens are, in every respect, equal to the pure. All such queens may be safely preserved, as *their drones are pure.* But no queens should be raised from them, and if a swarm issues from their hives the queens should be taken from them and pure ones given them, for *nothing pure* comes from a queen reared from such queens. No one should be contented to stop short of giving a queen *which will produce pure drones* the first season, to every hive he has, whether it be one or one hundred. This accomplished, your work is more than half done. The importance of this is manifest, for you will then have no common drones in your apiary the second season. When this is the case you can keep your own colonies strong, 'swarm' them early, and have little to fear from outsiders.

So long as you have common drones, a large proportion of your queens will meet them. I raised one hundred and forty-three queens the first season, which became fertile, and though I had many Italian drones in a dozen hives and suppressed the common drones as much as possible, only twenty-six of my young queens were fertilized by Italians.

It is said, and I doubt not with truth, that in all the Italian stock brought to this country there is a taint of impurity. This is of little consequence if we keep our stock pure. By exercising proper care, we can not only keep them as good as the original, but also do much to improve them. I have several young queens even more beautiful than those I bought, and queens reared from them are as fine as any I ever saw. Every one which does not produce pure drones should be replaced as soon as this is discovered, and those which are only hybrid may be changed before swarms are taken from them. All this requires care and patience, but it pays well to take this care.

In no way can the yield of honey be so sensibly increased as by introducing the Italian bee into different localities. As it replaces the old variety a great change will be observed.

Subduing Bees, Bee-dress, &c.—I find a great difference between the Italian and common bees in their irascibility. The former are much more easily managed. Still the timid will do well always to use some precautions. Sprinkling with sugar-water is the best means of subduing them when you wish to open the hive. If you wish to find a queen readily do not smoke, as it induces her to hide; but for any other examination of the hive it answers well. A wire hat with a deep curtain to it, and a pair of rubber gloves with gauntlets, make a perfect protection against stings. The gloves are very expensive, as they soon wear out from contact with the bee-glue or propolis. I find a pair of woollen mittens, with thumb and finger as knit for soldier's use, quite as good protection. They should be dipped in cold water before using. From these glues can be easily removed. A quiet, fearless manner when among

bees does much to prevent their anger. No stand should ever be made angry; they do not soon forget it, and after they are once enraged they are difficult to subdue.

Adaptation of the Business to Women.—Health is be derived from it. The ancients called the honey-bee 'Deborah, or she that speaketh.' Would that its gentle hum might *speak* to many women in our land, and awaken an interest in a pursuit so interesting, and at the same time so profitable! The quick observation and gentle handling, so requisite in the business, belong peculiarly to women, and there is no part of it which is laborious, or that may not be appropriately performed by them.

It has proved to me of great benefit. I came west twelve years ago, under sentence of speedy death from one of New England's best physicians, yet now rejoice in perfect health restored. More than to all other causes I attribute the change to the interesting occupation which has kept me so much of the time in the open air, and *paid me for being there*. I most heartily recommend it to others, who are seeking either health or a pleasant and profitable employment.

APIARIAN LITERATURE IN CHRONOLOGICAL ORDER.

19th Century, First Half, Continued.

(*Continued from page* 153.)

Neider, J. E. (German). Short Treatise on Bee-keeping. Leipsic, 1842.
Esnault. Traité pratique des Abeilles. Vimoutier, 1843.
Frairière. Traité de l'Education des Abeilles. Paris, 1843.
Oettl, J. N. (German). Clauss, the Bee-keeper of Bohemia. Prague, 1843. 2nd edit. 1853. 3rd edit. 1857.
Calvo. Quelques mots sur les Abeilles. Avignon, 1844.
Jaelne, E. (German). The Hoop Hive. Zitau, 1844.
Mussehl, N. Ch. (German). Complete Treatise of Apiculture. Neustrelitz, 3rd edit. 1844. 1st and 2nd. 1837.
Sauria. Traité sur l'Education des Abeilles. Paris, 1844.
K. Barth and A. Schmid. (German). Journal of Apiculture. Nordlingue, 1845. Still publishing. The two first years 12 Nos., the following 24 Nos. 1858, Berlepsch sub-editor. 1859, A. Schmid, sole editor.
Hoerstke, J. C. (German). The practical Bee-keeper. Magdeburgh, 1845.
Soria, C. Notice sur la Ruche à Espacements. Lous-le-Saulnier, 1845.
Thalberg, C. (German). Bee Friends. Leipsic, 1831. 2nd edit. 1845. Reprinted Quedlinb. 1846.
Thiede, C. G. (German). The Practical Bee-keeper. Jutebog, 1845.
Dürr, J. (German). Catechism of the Culture of Fruit-trees, Bees, &c. Schwabach, 1846.
Kettembell, C. G. (German). Bee-keeping with Storifying Hives. Nordhouse, 1846. 2nd edit. 1853.
Lombard, A. La véritable Manière d'élever et de multiplier les Abeilles. Paris, 1846.
N. (German). Papers on Rational Bee-keeping. Apolda, 1848.
——— (German). The Theory and Practice of Dzierzon, or the New System of Bee-keeping. Leipsic, 1848.
Csemi Csermy, P. (German). Short Treatise of Apiculture. Pesth, 1842.
Desvaux. L'Apiculture simplifiée, Angers, 1849.

19th Century, Second Half.

N. (German). Short Treatise on Bee-keeping. Frankfort-on-Main, 1854.
Ahlefeld. (German). Bee-flowers of Germany and Switzerland. Darmstadt, 1856.
Assmuss, E. (German). Natural History and Culture of the Common and Ligurian Bee. Leipsic, 1864.
C. B. Substances alimentaires (Miel et Cire). Paris, 1855.
Assmuss, E. (German). The Parasites of the Honey-bee. Berlin, 1865.
Baudet, J. Traité d'Apiculture pratique. Paris, 1860.
Berlepsch, A. de. (German). Bees and Bee-keeping. Mulhouse in Thuringe, 1860. 2nd edit. 1867.
M. Beyer and O. Kuhner. (German). New Bee Friends illustrated. Leipsic, 1851, 2, 3, 4, 7.
Le Blon, A. Nouvelle Méthode pour élever les Abeilles. Paris, 1857.
Blumstetter, J. (German). Short Treatise on Bees. Hechingen, 1859.
Bonnardel. Traité sur les Mouches à Miel. Lyon, 1853.
De Bouclon, A. L'Apiculture productive et pratique. Saquenville, 1867.
Bouget. La Culture des Abeilles. Paris, 1861.
Braun, A. F. (German). The Ladies' Hive, or the Hive with Windows. Leipsic, 1853.
Braun, Ph. (German). The Palatine Bee-keeper. Spire, 1857.
Bruckisch, W. (German). New System of Bee-keeping perfected by Dzierzon. 6th edit. Leipsic, 1849—1861.
Büchting, A. (German). Bibliography for Bee Friends. Nordhouse, 1861.
Burr, (German). Illustrated Journal of Practical Bee-keeping for Cottagers. 1st year. Meppen, 1864.
Busch, F. B. (German). Bee-keeping in Hives with Fixed Combs. Gotha, 1862.
——— (German). The Honey Bee. Gotha, 1855.
——— (German). What is thought of Dzierzon's Method. Eisenach, 1853.
Buzairies, L. A. Etudes sur l'Apiculture. Paris, 1856.
Bastian, F. Les Abeilles. Paris, 1868.
Buzairies, L. A. Etudes sur les Abeilles et leur Produits. Limox, 1857.
——— Les Ruches de tous les Systèmes. Paris.
Caneva, A. (Italian). Rules and Instructions for Bee-keeping. Plaisance, 1866.
Carey, E. Manuel Pratique sur l'Education des Abeilles. Geneva, 3rd edit. 1856.
Caron, Q. Nouveau Procédé pour l'Exploitation Fructueuse des Abeilles. St. Quentin, 1855.
Collin, S. A. Guide du Proprietaire d'Abeilles. Paris, 1856. 2e édit. 1857. 3e édit. 1865.
Columbus, D. (German). Honey-bees and their Culture. Linz, 1856.
Colvin. Treatise on Bees and Hives. Baltimore, 1860.
Compa, J. (Polish). Dzierzon's new Method of Bee-culture. Lissa, 1859.
Crépin, V. Traité sur la Culture des Abeilles. Paris, 1857.
Dathe, G. (German). Information for Ligurianising. Hanover, 1867.
Debeauvoys, J. B. Guide de l'Apiculteur. Paris, 1855. 6e édit. 1863.
Dollinger, J. M. (German). Bee-keeping in Straw Hives. Ansbach, 1854. 2nd edit. Munich, 1862.
Duvernay. Culture des Abeilles. Grenoble, 1856.
Dzierzon. (German). Bee Friends of Silesia. Three years. Brieg, 1854-56.
——— (German). Rational Apiculture, or the Theory and Practice of the Friend of Silesia. Brieg, 1861.
——— (German). Supplement to the Theory and Practice. Nordlingen, 1862.
Engelhardt, E. F. G. (German). Bee-keeping. Eckartsberga, 1852.

Espanet, A. Les Abeilles et leur Culture. Paris, 1857.
Eikart. (German). Apiarian Catechism. Leipsic, 1857.
Floquet. Considérations sur la Culture des Abeilles. Paris, 1860.
Frairière. Guide de l'Eleveur d'Abeilles. Paris, 1854.
——— Les Abeilles et l'Apiculture. Paris, 1855. 2e édit. 1865.
Gaertner, J. F. (German). The Bee in the Garden. *Monthly Journal.* Granzin, 1854–1855.
——— (German). The new System of Bee-keeping on the principles of Dzierzon. Granzin, 1854.
Gerstaecker, A. (German). Geographical Diffusion of the Honey Bee and its Varieties. Potsdam, 1862.
Goerold, F. (German). Feeding Bees. Berlin, 1860.
Gatter, C. (German). Honey and its Curative Virtues. Vienna, 1867.
Goezler, J. (German). The Dzierzon Hive. Stuttgard, 1857.
Goerold and Rouvel. (German). Dictionary for Bee Friends. Berlin, 1867.
Goubet. Manuel d'Apiculture. Lorient, 1863.
Greslot, J. L'Apiculture perfectionnée. Paris, 1856.
Gundelach, F. W. (German). Supplement of the Natural History of Bees. Cassel, 1852.
Haarlaender, P. (German). Bee Friends in Upper Bavaria. Munich, 1857.
——— (German). Good Advice to Bee Friends. Ratisbone, 1859.
Hamet, H. L'Apiculteur Journal des Cultivateurs d'Abeilles, etc. Paris, 1857 : *Jusqu'à nos jours.*
——— De l'Anesthésie, ou Asphyxie momentanée des Abeilles. Paris, 1855. 2e édit. 1863.
——— Petit Traité d'Apiculture. Paris, 1856.
——— Tableau d'Apiculture. Paris.
——— Cours pratique d'Apiculture. Paris, 1859. 2e édit. 1861. 3e édit. 1866.
Hamet et Collin. Calendrier Apicole. Paris, 1860. 2e édit. 1864.
Harbison, C. Bees and Bee-culture. New York, 1860.
Hermann, H. C. (German). The Ligurian Bee. Coire, 1859.
——— (German). The Experimental Bee-keeper. Coire, 1860.
Hoffmann, F. W. (German). Bee-culture. Vienna, 1854.
Houtschick, A. (German). Short Treatise on Rational Apiculture. Zuaïm, 1861.
Huber, L. (German). The Sublime Art of Bee-culture. Lahr, 1861.
——— (German). The New System of Bee-keeping, or the Dzierzon Hive. Lahr, 1857. 3rd edit. 1863.
Huber, F. (German). Recent Observations edited by G. Kleine. Einbeck, 1859.
Joigneux. De l'Education des Abeilles. Bruxelles, 1854.
Kanitz, J. G. (German). Keeping Bees for Honey and Wax. Henrichsdort, 1853. 2nd edit. 1860.
——— (German). The Prussian Bee Journal. Koenigsberg, 1860.
Kirsten, G. (German). Catechism of the Knowledge and Culture of Bees. Leipsic, 1852.
Klein. (German). Impregnation of Queens. N—— 1855.
Kleine, G. (German). Bee-keeping with Moveable Comb Hives. Einbeck, 1856.
——— (German). Bees and Bee-keeping. Niemburgh, 1864.
——— (German). Complete Treatise on Bee-keeping on the Dzierzon System. Berlin, 1864.
——— (German). Journal of Rural Economy for Hanover, 1865–1868.
——— (German). The Ligurian Bee and its Culture. Berlin, 1865.
Kraucher. (German). The Bee Friend Journal (for Saxony). Frankenberg, 1865–1868.
Kühner, J. F. O. (German). Blessed Apiculture. Leipsic, 1852.
Kühner, J. F. O. (German). The Ligurian Bee for Improving Bee-keeping. Hildburghausen, 1855.
——— (German). The Blessed Harvest of Honey and Wax. Leipsic, 1852.
——— (German). Robbers. Hildburghausen, 1851.
Kucer, F. J. (Moravian). On Apiculture. Brünn, 1855.
Kuhnt. (German). Guide to Bee-keeping. Dresden, 1850.
Lewel, J. (Polish). Bee-keeping in Poland. Posen, 1851.
Lieberkühn, E. (German). Bee Calender. Hall, 1853.
Lotter, J. M. (German). Bee Catechism. Nuremberg, 1864.
Magerstaedt, A. F. (German). Apiculture in Ancient Times. Sonderhouse, 1851.
——— (German). Practical Bee-keeping. Sonderhouse, 1856
Marcille. L'Apiculture. Rennes, 1862.
Menussier, F. Nouveau système d'Apiculture. Paris, 1858.
Menzel, A. (German). Natural History of the Common Bee. Zurich, 1855.
——— A. (German). On the Prolificness of Bees. Zurich, 1867.
Méril Catalan. Traité d'Apiculture, etc. Geneva, 1873.
Meulien. Notice sur les Abeilles. Paris, 1854.
Monin, F. Physiologie de l'Abeille. Paris, 1866.
Mautgandry. Les Abeilles. Paris, 1853.
N. (Gloger). (German). Friendly Advice to Bee-Keepers in Germany. Berlin, 1850.
N. (German). Apiarian description of Kirchbeine. Kirchbeine, 1856.
N. (German). Principles of Apiculture made easy. Wiessensteig, 1856.
N. (German). Apiarian Calender. Manheim, 1867.
Naehtmann, J. (German). The Poetry of Rural Economy. Vienna, 1858.
Nienaltowski. Propagation et Education des Abeilles en Algérie. Paris, 1862.
Oettl, J. N. (German). The Queen Bee. Prague, 1857.
——— (German). Volkmann to Imnenheim. Prague, 1857.
——— (German). The Prince Hive. Prague, 1864.
Penard Masson. Sur un nouveau Procédé de Conservation des Abeilles pendant l'hiver. Cormosh, 1857.
Portsmann, J. (German). The Theory and Practice of Apiculture. Lucerne, 1864.
N. Pratique complète d'Apiculture rationnelle et profitable. Lorient, 1864.
Quenin. Apiculture des Departements du Midi. Paris, 1859.
Radonau. Nouveau Manuel pour gouverner les Abeilles. Paris, 1859. 5th Edit.
Rouvel. (German). The Bee. (Journal). Berlin.
Rosemann, C. (German). Proper Wintering of Bees. Leignitz, 1854.
Roth, C. W. (German). Collection of Bee-Plants. Hanover, 1866.
Rothe, F. O. (German). Bee-Keeping in Straw Hives. Glogau, 1853. 2nd edit. 1855. 3rd edit. 1867.

(To be concluded in our next.)

Echoes from the Hives.

Thankerton, Lanarkshire.—PROLIFIC BEES.—'The Italian queen that I got from you last year has done very well. I had a swarm of Italian bees on the 16th of June, and in five weeks after it swarmed four virgin swarms; in three days after the first it swarmed a second, and in two days a third, and next day a fourth. They were all very good swarms.'—W. R.

Ellesmere.—'My bees are now snug enough in their winter quarters, under the quilts. They have been out a little the last two days. I weighed all the stocks when I had finished feeding for winter, on 8th November, and again yesterday, and I find that the average loss per stock for nearly six weeks is 1⅛ lbs.'—19*th Dec.*

Foul Brood.—'At the end of September I found that one of my best stocks was very badly affected with foul brood, so I made a new hive, followed your directions in *Journal* for eradicating the dreadful disease, and started the bees again with clean comb in new hive. I fed them through two holes, and now I think that this stock stands as good a chance as any of the others for safe wintering. The feeding of these was continued for about five or six weeks.'

Glasgow.—Judge's Duties.—I think, with you, that bee-keepers should have one broad 'platform,' and then we should not have so many squabbles. For instance, should there not be clear and defined lines for judges to go upon in all matters concerning awards to hives, bee furniture, and bee produce—so that there would be little room for disputes afterwards? Would it not be well to discuss the subject in *Journal* during the present winter months?

Queries and Replies.

Query, No. 223.—*Trifolium Incarnatum.*—Near my apiary is a common about 100 acres in extent, on which a good number of wild flowers grow, but to the best of my belief *Trifolium incarnatum* is not among them. The soil is of any thing but a rich nature. Do you think that the above plant would stand a chance of flourishing if sown over the herbage? What is its price per lb.—G. C., *North Wilts.*

Reply to Query No. 223.—To the best of our belief *Trifolium incarnatum* will flourish in any open position. Our seed-growers tell us it should be sown in autumn. The price is about sixpence per lb.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Hives and Frames.—(J. Potter.) We would greatly prefer not to enter at large into the question of which is the best hive and frame, it being a matter of opinion upon which very few persons agree. Our ideas of a hive are set forth in that called 'Abbott's Standard,' which we believe contains more conveniences for the bee-keeper than any other, and its frames are the nearest approach to the Langstroth of any in England, being only a trifle smaller. Mr. A. J. Root, one of the greatest authorities in America, a man who has spent half a life and half a fortune in experimenting, has settled down to the opinion that the Langstroth size is the best. He says: 'I recommend the Langstroth frame for everybody and for every purpose whatever, in preference to anything else, and I have pretty thoroughly experimented with all shapes and sizes. There may be other forms that will give just as good results, but I do not believe that there are any better.' In this we agree; our doctrine is that bees will do well in almost anything, as may be witnessed by the strength of colonies that take possession of and build in any sort of hollow, but that hives should be so constructed as to offer the greatest possible facilities for invasion. That is all.

C. P. S. (*Manchester.*)—We are obliged by the trouble you have taken in your communication respecting Warder's *True Amazons*, but if you look to page 41, June number, you will perceive that we have not overlooked the book in our 'Bee Bibliography.'

The *Journal* can be had from our office as per advertisement on page 134 of November *Journal.*

DR. PINE'S BEE-KEEPERS' LOTION.

This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

Testimonial.—'Your Bee Lotion has certainly a wonderful effect in allaying the pain and swelling resulting from Bee-Stings. I have applied it to many persons during the past season with the greatest success.'—Obed Poole, Hon. Sec. West of England Apiarian Society, Uphill, Weston-super-Mare. Feb. 13th, 1877.

Price 1s. 6d. per Bottle, or Post-free for 1s. 8d.

Agent—

Mr. C. N. ABBOTT, Editor of *B. B. Journal*, Fairlawn, Southall.

ABBOTT BROTHERS have on hand a large number of Winter-made Hives, ready for immediate disposal, giving plenty of time to paint, and ensuring readiness when required.

The Standard, 18 First Prizes and 4 Silver Medals - 30/0

The Cottage Woodbury, a great improvement on the 'Cheshire,' and all other forms of the Woodbury Hive - - - - - - - - - - 25/0

The Self-adjusting Frames, and the moveable side arrangement, stamp these as the best hives of their kinds ever invented.

Makeshift Standards. Body-box and 8 Frames, self-adjusting - - - - - - - - - 4/6

Makeshift Woodburys. Body-box and 10 Frames, self-adjusting - - - - - - - - - 4/6

Cottager's Standard. Body-box, 8 Frames, floor-board, roof, and quilt - - - - - - 8/6

Cottager's Woodbury. Body-box, 10 Frames, floor-board, roof, and quilt - - - - - - 8/6

Abbott Bros. have a large number of the above in stock ready for immediate disposal, and as room is required, offer them during the present month at a discount of 5 per cent for cash.

ABBOTT Bros., Fairlawn, Southall, near London.

LEAFLETS FOR THE MILLION.

The List now comprises—

No. 1. Transferring. | No. 4. Driving.
„ 2. Feeding. | „ 5. Hiving in Bar-frame Hives.
„ 3. Ligurianising. | „ 6. Making Artificial Swarms.

N.B.—These cannot in future be sent out in packets of less than Twelve (assorted or otherwise), for which Sixpence in stamps must be sent.

Each Leaflet is well worth twelve times the price charged.

C. N. ABBOTT, Fairlawn, Southall.

SCOTLAND.

R. STEELE, Hive Maker, Fowlis by Dundee, Winner of Twenty Prizes in 1877, at Edinburgh, Dundee, Carlisle, and Blairgowrie, is prepared to supply his PRIZE BAR-FRAME HIVES at from 4*s.* to 26*s.* FIRST PRIZE, ALL METAL, HONEY EXTRACTOR, 25*s.* and 27*s.* 6*d.* Machine-made Comb Foundation, 4*s.* per lb. Supers, Feeders, Smokers, Vulcanite, Perforated Zinc, Honey Knives, &c. &c.

Illustrated Catalogue on application. fo. 10

THE

British Bee Journal,

AND BEE-KEEPER'S ADVISER.

[No. 58. Vol. V.] FEBRUARY, 1878. [Published Monthly.]

Editorial Notices, &c.

FEBRUARY.

Fire.—With much regret we record the fact that our London printing-office, Castle Street, Leicester Square, was on the morning of the 24th ultimo entirely destroyed by fire, and all the properties of our *Journal* therein contained have vanished in smoke, or run into fantastic shapes, which laugh at the type-setter and fill the printer with despair. All our engraved blocks are gone; all the matter in type set up and ready for the present and future *Journals* is molten, and but for its grotesqueness would be shapeless; all the correspondence from valued contributors and everything connected therewith, except a little 'proof' sent to us for correction or revision, has been burned. The 'proof,' as will be seen, has been again 'set up:' the type and engraved blocks can be replaced, machinery reproduced, and articles re-written: but the date of their appearance will be different from what was intended, and valuable time will have been lost. This must be our apology, if one be needed under the circumstances, for anything that may be thought amiss in the present issue of the *Journal*, and friends whose letters do not appear will, we trust, excuse the omission, and we hope write us again.

Work for the Month.—After the mild weather which has prevailed during the past month, it will be wise to remember that activity has prevailed in the hives, and that stores have consequently diminished; and where much breeding has been going on, the honey and pollen will have been converted into brood, which being of nearly equal weight with the 'material' of which it has been formed, may deceive the unpractised hand where weight is the only criterion by which the strength of colonies is judged. When there is any doubt as to the sufficiency of stores, barley-sugar should be given in small quantities daily.

Do not needlessly disturb the bees, as they will be better if allowed to remain unmolested. Disturbance causes activity, and the consequence will be the consumption of stores, which should not at this season be encouraged.

Should undue activity be displayed at the entrance of any hive, it will be well to remember that robbery is often the exciting cause, and that such hives may be in great danger from the attacks of their marauding neighbours. Where great activity is observed, the hive should be raised, and unless the *cluster* of bees extends to the bottom of the hive, means should be adopted for determining the cause of the excitement. It is of course within the bounds of possibility that a very active stock may be engaged in robbing another in a neighbouring apiary, or the activity may be caused by the brigandage of bees *from* such an one, but in either case the truth may be arrived at by dusting those engaged with common flour, when it will be seen whether the white bees enter other hives at home or depart for another locality. If the robbers prove to belong to the home apiary, the entrances of the hives of the thieves and their victims should be closed for an hour with perforated zinc, after which the latter should be opened to allow the thieves to go home, when it should be carried to a dark cellar and kept there for a few days, or it should be sent to a distant apiary. When it has been rendered safe, by either process, the robbers should be allowed to enter their own hive by the removal of the zinc from their entrances. Exchanging the positions of the thieves and their victims is another means of staying robbery, but is scarcely commendable at this season, as the queens of both will be endangered, and re-queening is not easy of accomplishment.

A stock whose cluster of bees extends to the floor-board is seldom liable to attack, but is more likely to be the assailing body; and if not engaged in pilfering in the home apiary, the onus will lie with the owner of another, who should however be informed of the fact, if ascertained. The sudden outpour of bees on a fine day for cleansing purposes, after long confinement to their hive, must

not be construed into 'undue activity,' but should be encouraged, the entrance-guards being removed to give free means of ingress and egress to and from the hives.

Entrances should be carefully watched, and kept as narrow as the strength of the hive will allow. The 'Work for the Month' of January should be re-read and acted upon, for in most cases it is applicable now, and repetition would be wearisome.

STIMULATIVE FEEDING.—Towards the end of the month, stimulative feeding should commence, if the weather give promise of remaining fine and open. The idea is our own, originally given to the world in *The English Mechanic,* and its practice has become general with all advanced bee-keepers. Its object is to ensure a steady, continuous, and gradually increasing incoming of honey or its substitute into the hive, that the bees may be induced to commence breeding earlier than they would under natural conditions, and so get the hive peopled with young bees, and its strength increased before the usual honey-yielding flowers and blossoms appear.*

ARTIFICIAL POLLEN may be given when the crocuses appear, and bees begin to work upon them. There have been many devices for giving the bees the pollen in a way that they can take it conveniently, but we have found nothing to succeed so well as an old skep filled with deal shavings. It was until lately a great puzzle to bee-keepers why bees could not or would not take the meal when offered to them unmixed with other substances, the notion being that they collected it with their feet and packed it on their thighs; but now it is known that they collect it with their tongues, which, when damp, they roll about in the meal until the adhering particles form a paste, when with the front legs they scrape it from the tongue and pass it to the thighs, as explained in the January number of the *Journal.* Pea-meal, *i.e.*, meal made of ground peas, such as is used in the manufacture of pea-soup, and is prepared by various makers, and sold by grocers and mealmen in packets at a penny and twopence each. It is a very fine powder, and if offered in its pure condition, say, in a glass jar or earthen vessel, the bees *cannot* take it, because, when standing in it, they are unable to use their legs, and therefore it is necessary to give them something to stand upon to enable them to clean their tongues and fill their knicker-bockers with the paste they have formed. For this purpose an old skep, well warmed to make it smell of its former coveted contents, should be lightly filled with new yellow deal shavings, and the pea-flour should be sprinkled upon them, and in fine weather the bees will eagerly avail themselves of the opportunity, and in large apiaries will carry away several pounds per day, and utilise it as pollen. We prefer the skep and shavings because the latter lie hollow, and allow the bees to get down amongst them, which they will sometimes do in such quantities as to generate considerable heat, thereby lessening the chances of their becoming benumbed and lost. Others recommend such vehicles for pollen feeding as their fancy or experience leads them to rely upon. In some instances the pea-flour is put into crocus blossoms to supplement the natural supply of pollen, and in others artificial crocuses, formed of coloured paper, are made the receptacle, and, being placed in bunches amongst the natural flowers, add to the appearance and serve their purpose *pro tem.* There is, however, a reason why the artificial crocuses are not the best means of administering the pea-flour, which appears to have escaped the notice of those recommending them; and as it is another illustration of the loving-kindness of Him who doeth all things well, it is worthy of more than a passing notice. Bees are very tender cattle, and it is well known that if tempted to leave their hives when the temperature is unsuitable, the chances of their return are problematical. Now if natural crocuses (like those artificially formed) kept 'open' all day, and every day, the bees, having once partaken of their contents, would be induced to seek them at all times and in all weathers while daylight gives opportunity, as they do when their (*quasi*) interest induces them to rob a neighbouring hive; and the consequence would be that many would leave their hives, to die by the way. Crocuses as a rule bear the first early flowers that tempt bees from their hives, and who shall measure the Infinite Wisdom which has everlastingly determined that they shall not open their petals unless the sun shines and makes it *safe* for the bees to visit them?

* See leaflet on 'Feeding'—post-free from our office for one stamp.

THE PROPOSED CENTRAL ASSOCIATION OF BEE-KEEPERS.

As will be seen by some of the correspondence, which fortunately was not burned in the fire on the 24th ult., considerable interest is taken in the affair, and we have promises of seven life-members at two guineas each, and one from a gentleman who promises to find, including himself, five life-members,

who will be donors of five guineas each. In each case there are conditions, but they amount to nought if the Association gets fairly started. We trust, as the season advances, that others will feel an interest in the good work, and send in their names, the condition being that there shall be no start if there be not fifty life-members, or a hundred pounds subscribed.

The present list contains the names of C. N. Abbott, 'Dr. Pine,' P. H. Phillips, R. Symington, I. Hale, R. R. Godfrey, and C. Atlee.

But for the fire above alluded to, we should have increased the number by personal canvass, but with such a nucleus we are satisfied that the thing will not linger by the way.

ABBOTT BROTHERS' CATALOGUE, 1878.

Messrs. Abbott Brothers, of Southall, Middlesex, beg to express their deep regret that through the fire which occurred at Strangeways' Printing-office on the 24th ultimo, the whole of the engraved blocks with which their catalogue was to have been illustrated were destroyed, and that its production will therefore be delayed for a few days. The delay in the appearance of the catalogue does not, however, interfere with the manufacture of hives, &c., and Abbott Brothers hope yet to secure the patronage of advanced bee-keepers.

HOGES' CARRIER.

The *American Bee Journal* says: 'Here is a case where comb honey was carried on ox-waggons, steamboats, and railroads a distance of 2250 miles without breakage.' It appears that the comb honey was placed in 'Hoges' Patent Rubber Ball Cases,' and travelled 1000 miles by railroad, 1000 miles by lake steamer, and 250 miles in dead-axle ox waggons, and when opened not a single comb was found to be broken. This is saying a good deal for 'Hoges' Patent Rubber Ball Cases,' but we think it may be useful to some who wish to try them to know that rubber ball cases are an invention of our own, published in Vol. II. of the *British Bee Journal*, p. 178, and that therefore their use will not be a piracy of a patent.

STOCKING OBSERVATORY HIVES.

Bee-keepers who are desirous of establishing observatory hives within their dwellings, that they may see for themselves, and exhibit to their visitors the many wonderful things that take place therein, should pave the way to success by procuring a stock of bees from a distance, and placing it either inside the room where the observatory is to stand, or outside close to the flight-hole in the wall or window-frame through which the bees are to pass. If it be determined that the observatory shall be stocked with a swarm that their work may be noted from the beginning, the stock should stand within the house, that the bees may know their way through the flight-hole; but if it is intended that the observatory shall be stocked by placing frames of comb and brood covered with bees in it, the stock may stand outside until the transfer has been made.

In the former case, when the swarm is to be made to take possession, frames otherwise empty should be fitted with wax comb-foundation, about two-thirds their depth, and hanging clear of the ends of the frames, so that if it stretches at all it may do so evenly and without sagging. The full stock should then be taken outside, and the observatory set in its place, so that it may receive the bees which return from flying, and a swarm should be driven, care being taken to catch the queen and put her into the observatory, that the bees inside may remain; the bees of the swarm being thrown on to a board fixed against the flight-hole, and driven or guided in with a small brush or feather. Generally, with a strong stock, the bees on the wing are sufficient of themselves to form a swarm suitable for the purpose; and if it be so, the driven bees should be returned to the stock-hive, which should then be carried to another stand, as in artificial swarming.

In the other case, if the stock be outside, the flight-hole (hitherto closed) should be opened, and the observatory hive stocked by placing within it as many frames of comb, brood, and bees, as it will hold, when it should be carried within and fixed in its place. The bees within will soon begin to investigate their new home, and will pass in and out of the flight-hole to and from their brood, which they will not desert; and when the stock hive is removed to another stand, all the flying bees will go to their old location and will readily take possession of the observatory which will be so near, and which will contain their own bees and brood.

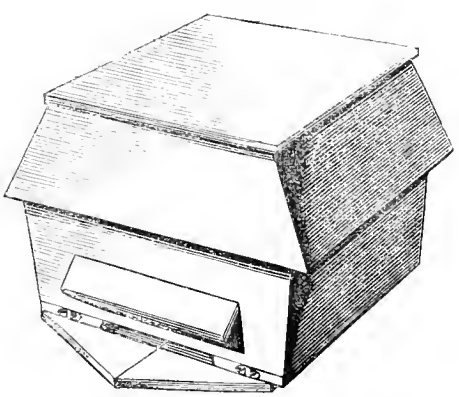
Observatory hives may be stocked by other means, but we would recommend that they be always furnished with bar-frames, and with straight combs, or guides that will ensure them being so built. If put into the observatory, and left to their own devices, no comb or guide being given, the bees will build diago-

nally, and make short combs, so that they can get *between* them, as is most in accordance with their nature; but in that case the experiment would be wasted, as *between* the combs the actions of the bees cannot be observed.

It must not be forgotten that unicomb observatory hives cannot be kept for profit in the ordinary sense. They afford inestimable pleasure during the summer, while the bees are able to keep up the heat necessary for life-giving and breeding purposes; but in cold weather they quickly fade, their brood perishes and becomes cold, and they gradually die out.

A unicomb observatory hive, when first stocked, should be closely covered up and kept warm, for be it remembered that a single comb should not have more space on either side of it than half that left by the bees between each pair of combs built by themselves, or they will build flitches of comb-foundation, behind which they will hide themselves, or they will build against the glass and prevent a full view of their operations; facts which show that bees can be but thinly clustered upon comb-foundation, and still more thinly packed on combs of brood, yet in both instances the maximum amount of heat is required to enable them to carry on the natural operations which it is so desirable to 'observe.' All hives for observation purposes should have glass walls formed of double glass, with a space between, to contain '*dead air*'—*i.e.*, air that cannot by any movement of the hive, bees, or outer atmosphere, be set in motion. Dead air is universally acknowledged to be the best non-conductor of heat, and therefore the best protection against cold.

THE GUINEA STANDARD.



The internal arrangement of this hive is the same as in No. 1, except that only one side is moveable, and outwardly it varies only in the shape of the roof, which is hinged, the absence of legs, and the variation in the porch. The roof is flat-topped, covered with zinc to secure dryness, and is of the pattern sent forth by Mr. Herbert Fuggle. The shape taken as a whole, insures perfect dryness. It is exceedingly well made, double sides, thick back and front, and has slides to narrow the entrance. Manufactured solely by Abbott Brothers, Southall.

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris. Berger, Levrault & Co. 1875.

(*Continued from page* 162.)

As regards the number of eggs that the queen can lay in a day we must turn to the German and American authorities who have closely studied the question. The following opinions may be quoted :—

Dzierzon. 'The queen-bee proportions the number of eggs she lays to the wants of the hive. In a bad season, and in a weak hive, she will often lay only a few score eggs each day, while in a good season and in a strong hive she is able to lay several thousand eggs daily, at the moment especially when honey is very abundant in the fields (1). Under favourable circumstances the queen will lay 3000 eggs at least per diem, and in a strong hive most queens will lay 60,000 eggs per month.

Berlepsch states that in June, 1846, he counted 57,000 cells filled with young of all ages in a single hive that had a very fertile queen. He considers, however, that this enormous number is rare, and that ordinarily a fertile queen in a strong hive will not lay above 1200 eggs per diem even in the best seasons.

Baldridge, an American bee-keeper, states that in 1859 he counted the cells filled with young brood in one hive, from which he removed all the frames to his house for the purpose after having driven the bees out of them. He counted 3643 eggs, of which 580 were those of drones; 4354 larvæ, of which 652 were drones; and 7442 chrysalis, of which 91 were drones: or a total of 15,439 of all sorts, of which 1323, or about 8¼ per cent. were drones. In this case the queen was about six weeks old only. Allowing for the time that the young of the working-bee remain in each stage of growth, the above gives 1264 per diem as an average for the eggs, and only 874 and 620 respectively per diem for the larvæ and chrysalis.

It will be observed that for convenience of calculation no difference is made for the larvæ and chrysalis of drones, which would not practically affect the present question. The greater number of eggs laid in the last three days goes to prove that the honey-gathering was much more favourable during them, than during the first twelve days of the period under review.

It may be observed that in this case we have a queen of only six weeks old laying drones' eggs. This goes to prove that under proper conditions a young queen is perfectly well able to lay drones' eggs, although it is not usually the case that she does so in the first few months of her life (2). It has been fully established by

Editorial Notes.

(1) The abundance of honey 'in the fields' is not the criterion which proves the ability of a queen to deposit the maximum number of eggs, but it is the great 'incoming' of honey, which can only arise from a huge population, correlative with the 'abundance' above mentioned. The happy state of things thus ensured acts and re-acts, the great incoming being due to the population, and the heat and stimulative influence to the incoming.

(2) A young queen will lay drone eggs if drone cells

numerous researches that all eggs laid by the queen-bee, whether those which are destined to produce ordinary working-bees, or queens, or drones, are identical in the first instance; and that the difference in their produce depends on the manner of their treatment, either at the moment of being laid, or subsequently after the egg is hatched. The difference is that the egg which produces the male or drone, possessing in itself as it does the vital principle while yet in the ovary of the queen mother, has no need to be fertilised, and can be, and is, laid by queens who have never been fertilised as well as by fertile workers. The egg, however which is destined to produce either a queen or an ordinary working-bee must be fertilised. To this end the egg is pierced at the moment that it is being laid by a filament which proceeds from the seminal vesicle of the queen, and which changes its gender so that the little creature produced from it becomes either a queen-bee or an ordinary worker, according to the manner in which it is reared. The queen, however, can spontaneously, and as directed by her instinct, with reference to the requirements of the hive, and the abundance or otherwise of the honey crop, lay eggs that will produce either drones or ordinary workers and queens (3).

The above doctrine, called *parthenogenesis*, was discovered by Dzierzon, and followed up and demonstrated by Von Siebold, a great physiologist and professor in the university of Munich. It explains at once the presence of drones in a hive at certain seasons of the year, as well as their absence at other seasons, and many other points connected with the propagation of bees which up to that time had remained unexplained. Von Siebold proved by microscopic observations that while drones' eggs showed no signs whatever of fertilization, the eggs of other bees, when split in two and placed below a double magnifying glass, invariably displayed one or more fertilising filaments often still moving about in them.

The above experiments of Von Siebold were followed up and confirmed by Huillon, a French physiologist in 1862, vide the *Apiculteur* of September in that year.

When a hive has either lost its queen by accident or natural causes, or is purposely deprived of it, the bees at once (4) become aware of the fact, and in the course of a few hours set about to repair their loss. To this end they select certain larvæ or young grubs of workers (not of drones) (5), and give them such special treatment and food as is requisite in order to rear them like the true royal progeny. To effect this they sacrifice the three cells next that in which the little insect which is thus honoured lies, and thus erect an enlarged cylindrical cell around it. This is all toughly formed within twenty-four, or at furthest within thirty-six hours after the loss of the old queen (6). These royal cells are in the form of an acorn-cup with the acorn out of it. Four days and four hours as nearly as possible after the loss of the former queen some of these new royal cells will be sealed in, others will be on the point of being so, while others will be found abandoned. Finally, seven days and twelve hours from the moment that the first royal cell was sealed a young queen will issue from it, whose first care will be to attack in their cells and kill her yet unborn rivals, or to fight to the death with any one that may have issued from its cell at the same moment.

The above is under ordinary circumstances what takes place in a hive on the loss of the queen. In the swarming season, however, in a strong hive, what follows is somewhat different, as the bees, feeling themselves sufficiently strong to throw off a second swarm, do not permit the newly-born queen to destroy her rivals, which are retained as prisoners in their cells. As a consequence, either from fear or jealousy, the queen who first gives utterance to a clear plaintive wail, which sounds like 'tuh, tuh,' which she repeats ten times or more without interruption, and sometimes with such vigour that it may be heard three yards or more from the hive. To this cry the prisoner queens reply by a stifled sort of wail which sounds like 'quak, quak.' This takes place about twenty-four hours, or on the day after her birth (7), *i.e.*, the thirteenth day after the loss of the old queen; and on the day following, or more commonly on the day after again (that is, on the fifteenth day from the loss of the old queen), the first young queen which sang 'tuh, tuh,' goes away with a second swarm from the hive, while one of the prisoner queens succeeds to her place in the stock. The number of young queens thus reared is proportioned to the strength of each hive, varying from three or four in weak hives, to from ten to fifteen in strong ones. In strong hives where several cells are constructed in which to rear the young queens there will be an interval of from thirty-six to forty-eight hours between the moment of the first and the last queen arriving at maturity. But in weak hives where the cells are few in number, all the queens will arrive at maturity nearly at the same time. When it happens that the cells are placed close together in the hive, it may be supposed that the eggs were laid at the same moment, and that the royal insects will arrive at maturity together.

(*To be continued.*)

---

come in her way, as freely as she will worker eggs in worker cells, but, if the conditions necessary to the production of drone bees be not co-existent, the worker bees will eat or otherwise destroy them.

(3) A queen cannot at will lay drone eggs in worker cells, or worker eggs in drone cells. In fact, the latter are seldom found, although they are possible, as has been proved when a swarm has been placed in a hive containing drone combs only. There is little doubt but that the 'Dzierzon' theory is correct, *i.e.*, that drones can be and are produced without the queen-mother having been fertilized, and we fully accept the theory of 'Wagner' that the size of the cell governs the sex of the egg. We have enlarged on this subject in 'Mysteries of the Bee-Hive,' in the earlier numbers of Vol. IV., and have seen no reason to alter the views therein set forth.

(4) As a rule, the bees discover their loss within an hour or two, particularly if she has been removed after great disturbance of the hive, as is usually the case, but if captured without alarming the bees, her absence may not be discovered for many hours.

(5) This is not correct in fact. Bees are often so blindly stupid as to raise queen (?) cells on drone comb, using the male eggs contained in them for transposition to queens. This may be often observed where, after removing a central comb of worker brood, a new drone comb has been built in its place, and stocked with eggs. The bees appear to prefer new comb on which to build queen cells, but of course the male eggs never become queens.

(6) It should be 'after the loss of the queen has been discovered.'

(7) We are very much disposed to believe that the so-called 'queen-piping,' instead of being, as is usually supposed, a note of challenge to rivals, is really a cry for food from the young queens imprisoned, similar to what may be sometimes heard from mature queens encaged in the hive, or held in the hand for a few minutes.

THE QUEEN BEE.

By William Raitt, Esq., *Secretary to the East of Scotland Bee-keepers' Society.*

The queen or mother bee is an object of the greatest interest. The casual observer cannot fail to be struck with the marked respect and unwearied devotion exhibited towards her by her subjects, as well as her own fond affection for them and her diligent attention to her special duty as the mother bee. To the naturalist she is one of the greatest marvels in nature. There are mysteries connected with her origin, her anatomy, her

fecundation, her habits, the duration of her life, and her peculiar instincts, which have fascinated some of the greatest minds in all ages, and remain, many of them, unique facts in nature—attractive, wonderful, profound. Let us take a passing glance at some of these wonders. Is not it wonderful that an egg which was originally laid in a worker cell, and destined to be a worker bee, should yet, by special attention on the part of the nurse bees, become an insect so different in its instincts, anatomy, and habits from the common worker? Yet this is a well-ascertained fact. While the workers in a hive manifest the greatest sociality towards each other, our newly-hatched queen exhibits the greatest animosity towards all others of her kind, and can brook no rival. Death or banishment is the only alternative. Further, she exhibits none of the provident or constructive skill possessed by her sisters. She assiduously attends to the business of egg-laying, but gives no further heed to what may become of these eggs, or the larvæ hatched from them. While the others daily leave their domicile in quest of food for themselves and their young, she remains at home, except when seeking her one act of union with the male, or when about to head a swarm. Then, how different her anatomy! On this point Mr. Kirby says, in writing to a correspondent :—

'What! you will ask, can a larger and warmer house, a different and more pungent food, and a vertical instead of a horizontal posture, give a bee a different-shaped tongue and mandibles; render the surface of its hinder legs flat instead of concave; deprive them of the fringe of hairs that forms the basket for carrying the masses of pollen—of the auricle and pecten which enable the workers to use these legs as pincers—of the brush that lines the insides of the feet? Can they lengthen its abdomen, alter its colour and clothing, give a curvature to its sting, deprive it of its wax-pockets and of the vessels for secreting that substance, and render its ovaries more conspicuous and capable of yielding both worker and drone eggs?'

But it is mainly to the bee-keeper that we address ourselves in this paper. And, while every intelligent bee-keeper will also be a naturalist, we must not forget that most of us seek to be naturalists that we might be better bee-keepers. We seek knowledge in order to apply it, and in this way 'knowledge becomes power.'

Turning, then, to the bee-keeper, we continue our subject. We magnify its importance; we acknowledge our queens to be the most valuable part of our stocks, and we would like to know all we can about them. Need I bespeak attention? Certainly; for how often have I come to grief by doing things of which I had afterwards to say, 'I should have known better.' My somewhat extensive reading, somehow, never fixed the principles in my mind. Practice did much; blunders and failures did more. Let bee-keepers carefully attend to the results of research by others, and thus avoid the losses through which many of these results have been gained.

First, then, bee-keepers should know that there are various kinds of queens. 1. There are those raised in the natural way at swarming-time from eggs raised in royal cells. In favourable weather these usually begin to hatch out eight days or so after the departure of the first swarm. Should the swarm have been hindered by bad weather, the hatching-out may take place several days earlier. The first hatched pipes defiance to those still in their cells, until compelled by unknown impulses to leave with another swarm and make way for another princess to hatch out, who may probably follow the same course, or if no more hatching is intended, sting her younger rivals to death. The presence of such young queens dead in front of a hive is a pretty sure sign that swarming is over for the season in that hive. 2. There are those raised from eggs laid in worker cells. Such queens are raised when, from any cause, a hive has lost its queen without having eggs laid in the royal cells —after artificial swarming, for instance, or when a queen is transferred to another hive by the bee-keeper. Of course the bees must have eggs or very young larvæ to work upon, else they will never be able to rear a queen. No real difference exists between such queens and those raised in swarming-time, unless it be that many observers fail to hear them piping, and call them silent queens. Probably this is because such queens are not usually raised for swarming purposes, and no guard being kept over the royal cells, the other princesses are quietly stung to death by the one first hatched. 3. Then there are unfertile queens—that is, queens that have never been fecundated by the drone. Naturalists have fixed various limits to the time when fertilisation is possible—from the eighth to the twentieth day or so of the queen's age. But a member of the East of Scotland Society in 1875 observed a young queen leave her hive almost daily, on marriage bent, for a period of thirty-one days after she was hatched, and she turned out a fertile queen after all. These unfertile queens are not, however, wholly unproductive. Like some other insects, they are capable of producing fertile eggs without having had commune with the male. Such eggs, however, always produce drones. Thus the presence of drones in usual numbers, or at an unusual season—and especially when many of them are of small size from having been reared in worker cells—affords ground for suspicion that the hive has a drone-laying queen, and should be carefully examined. The absence of sealed brood of the worker kind—the highly convex lids of any sealed brood that does exist, and these only found at scattered intervals—are pretty certain inferences that such a queen exists, and they are by no means rare. With the bar-frame hive such examinations are easy and reliable. 4. There are fertile workers. These, of course, are not queens, except in that they lay eggs which, like those of unfertile queens, always produce drones. They are supposed to be raised from larvæ too old to hatch into perfect queens. They get all the treatment that royal grubs get, but their organisation is too far fixed to be so entirely altered as is necessary in a perfect queen. Others suppose that they are workers hatched close to the royal cells, and which have partaken of some portion of the royal jelly. Any way, they are a great nuisance. They cannot be removed as an unfertile queen can, for they do not differ in appearance from the other workers. Yet they must be got rid of, for there is great risk in introducing a fertile queen where they exist. The most approved method is to remove the stock to a distance of fifty yards or so, and there drive out or brush off all the bees. Those that have been real workers will find their way home to the old stool, while the pseudo-queen, not having flown before, will most likely be lost, or enter a wrong hive and get killed.

Secondly, the bee-keeper should be thoroughly posted up in some facts of vital importance in the history of fertile queens. 1. Sixteen days usually elapse between the laying of the egg and the hatching-out of the queen. When a stock, deprived of its queen by artificial swarming or otherwise, raises queens, they usually hatch out fourteen days after the loss of the queen, the shorter period being owing to the bees selecting larvæ and not newly-laid eggs for rearing the queen. These sixteen days are thus occupied: three in the egg, five as a worm, when the bees seal her up, one day more spent in spinning her cocoon; in three days more she changes into a nymph, and emerges from her cell a perfect insect on the sixteenth day. 2. The bees usually raise from six to twenty queens when they are about it, and the oldest of the lot either kills the others or departs with a swarm. Before thus departing she pipes defiance for two days or more, and her sisters pipe in return. This is a pretty sure sign that after-swarms are to issue. 3. Fecundation is usually sought by the young queen about the

fifth day of her age, and in favourable weather daily thereafter until attained. The act of commerce with the drone is once for all. The queen is thereafter fertile for life. A queen that has failed to meet the drone within the first few weeks of her life lays only drone eggs, which require no fecundation. Thus, a Ligurian queen produces worker bees, pure or hybrid, according as she mates with a Ligurian or a common drone, but in either case her drone progeny will be all pure like herself. 4. Their fertility varies greatly. 3000 eggs a-day is perhaps the extreme limit, and has been attained, it is believed, by good Ligurian queens. 2000 is about the average power of good queens during favourable weather. How important, then, to have large hives if we wish to get the full advantage of this amazing fertility! Many queens, however, are not capable of laying more than a few hundreds, especially after they are three years old. These should be weeded out. Fertility, however, varies with circumstances. Generally speaking, when food is abundant, and the hive is thus in a state of constant excitement, brood rearing goes on very briskly. In cold weather, however, or when forage is scarce, very little brood is raised. A knowledge of this enables the bee-keeper, by constant but slow feeding, to create an artificial honey harvest to the bees, and thus to promote their rapid increase at seasons when they would otherwise be diminishing in numbers. 5. The duration of a queen's life is usually given at from three to four years. Many, of course, perish before that time, and some live beyond it. As a rule, therefore, to avoid risk, no queen should be kept over three years old. Let bee-keepers attend to this, and there will be fewer cases of dwindling or defunct stocks. Should a queen become barren through age, probably she will die and leave the bees no means of providing a successor; and, even though she may leave eggs or larvæ behind her, her successor may be raised at a season when no drones are to be found, and be thus doomed to barrenness so far as worker progeny is concerned.

From these few facts let us deduce a few practical lessons.

1st. Keep a constant watch to ascertain the presence of a fertile queen in every hive. Look out for dead queens lying in front of the hives at times when they ought not to be there. Daily notice whether pollen-gathering goes on in every hive—a good sign, though not an infallible one. Occasionally inspect the combs, to see if brood is being raised. If you have a bar-frame hive, nothing is easier; the very last laid eggs can be easily seen, and even her majesty herself without much disturbing her. Notice whether other bees are robbing a particular hive; queenless stocks lose heart, and become an easy prey. Especially take notice of any hive which seems to be in great commotion while the others are quiet. When a queen is lost the bees usually run out and in, up and down the front of the hive, take short flights, and keep up a disturbed and irregular hum for many hours. The first notice we sometimes get is the sight of royal cells being erected, and occasionally, after an after-swarm has been some weeks established, such royal cells are found on the newly-built combs without either eggs or brood in them. The queen has been lost on her wedding trip, and the bees have no means of raising a successor. Their instinct leads them to erect royal cells, but without eggs they are useless. Special attention should thus be paid to hives with queens requiring fecundation, and 'all's well' spoken only when worker brood is found. Young queens frequently get lost thus: they lose their way; are picked up by some bird; or enter the wrong hive and get killed; or maybe from defective wings, want of drones, or bad weather, remain unmated and therefore unfertile.

2nd. Learn to supply a queen to a queenless hive, or to exchange a fertile for an unfertile one. We shall suppose that a strong suspicion has been created that a particular stock is queenless. Without further examination only good can be done by uniting a late swarm to such, should it be swarming time. Should there even be two queens in the hive, the surplus one will be killed and thrown out. Should queens, however, be scarce, or expensive to procure, we cannot afford to risk their introduction without more careful scrutiny. If it is a skep, all the bees should be drummed out, shaken on a cloth, and carefully examined by moving them about with a feather. If bar-frame hives are used, every comb must be carefully examined while transferring them to an empty box, and any bees remaining in the hive carefully scrutinised. In either case the truth will almost to a certainty be discovered—queen or no queen. What then? Of course, if no spare queens are to be had, and the season is not suitable for raising one, the bees should be joined to some other hive that has a queen, and being, in such a case, usually broodless, only good will be done. Every skilful apiarian will, however, endeavour to have one or more spare queens on hand for such emergencies. Let us suppose he has. Short work may be made by simply sprinkling the driven bees with thin scented syrup, dropping her majesty among them after sprinkling her, and allowing all to run together into the hive. This plan seldom fails. With valuable queens, such as Ligurians, greater precautions are adopted. She is usually enclosed in a wirework cage along with one or two of her own bees. This cage is stuck in between two honeycombs, and allowed to remain there for thirty-six or forty-eight hours, till the bees have got accustomed to her presence, when she may be set at liberty, and will generally be gladly welcomed. Of course, when it is intended that she is to take the place of another queen the latter must first be removed. Should no queen be available, and the season be suitable for rearing young ones, all that is necessary is to give the queenless hive a small piece of comb from another hive, containing eggs or very young larvæ. This is stuck into a hole cut in one of the combs in bar-frame hives, and let down through the top hole in the case of a skep, room being made for it with the knife. The bees usually commence at once to rear royal cells, which hatch out their queens in fourteen days thereafter. This latter proceeding is based on a discovery made by Shirach, a German, that the bees can raise perfect queens from worker eggs. Huber carefully confirmed this by many experiments, and it is now largely practised where surplus queens are reared for sale or use. Anatomy shows the worker to be only an undeveloped female. Still another method may be adopted. Another hive may be known to be engaged at the time raising queens, as after throwing a swarm. In this case one or more queen-cells may be cut out and given to the queenless stock, fixing them as before. It will be seen that no bee-keeper need ever lose a stock for want of a queen.

3. He should learn to raise spare queens. These are very useful, not only in the case of queenless stocks, but to give to hives that have been artificially swarmed. A day is allowed to elapse when a sealed royal cell from another hive or the queen nursery may be given to the parent hive, or a newly-hatched queen may be run in at once, or one kept in the rearing box till fertilised may be caged as before. In either case a saving to the bees of from ten to thirty days is made. The following are some of the methods adopted for raising surplus queens: A healthy stock is purposely deprived of its queen a fortnight before young queens are wanted. On the tenth day, or not later than the twelfth, all the royal cells but one are cut out. If the queens are for immediate use these cells are fixed with wax inside a small box or other vessel with a perforated bottom, to let in the heat of the hive but keep out the bees. This is set over the feeding-hole of the hive, and covered over for warmth. When examined at intervals on the fourteenth day, the young queens will be found hatching out, and may be united at once to any stock requiring them. It seems

to have been proved that such newly-hatched queens are accepted by queenless stocks without the slightest ill-usage. Should such queens not be immediately required, we must provide each royal cell or princess with a small lot of bees, say a cupful, in a little box filled with, say three pieces of comb a few inches square. This is accomplished by first fixing the royal cells in the little boxes, and from a bar-frame brushing off the necessary number of *young* bees (be careful of this, for old bees will often fly back to their hive) close to the box. They speedily ascend, and if attended to with thin syrup for a few days, they act like a small swarm, hatch out their queen, and watch over her till she is fertilised. If a skep is used, the driven bees should be shaken on a cloth and agitated for some time to cause the old bees to fly to the hive, when the little boxes may be set down over clusters of the young bees and thus peopled. The latest Yankee notion is a queen nursery, where the artificial heat from a lamp is used to hatch out the queens.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

At a Meeting of the Committee held in Lamb's Hotel, Dundee, on the 8th December, present the President, J. Stewart, Vice-president, and Messrs. Ker, Young, Steele, Rogerson, Glen, Alexander, Ramsay, and Raitt, the Secretary was authorised to make the necessary arrangements for holding the Annual Meeting on the 26th January. The hour of meeting was fixed at 3 o'clock for business and 4 o'clock for conference.

The Secretary then submitted a draft of report for the year, which was adopted as the Report of the Committee to be submitted to the General Meeting.

The Treasurer reported a balance of funds in hand of 24*l.* 6*s.* 5*d.*, and Messrs. H. and J. Lorimer were appointed to audit the accounts for the year. The Treasurer reported that the Dundee Horticultural Society had offered to renew their donation of 20*l.* to the Prize Fund on condition of this Society holding its Show for 1878 in conjunction with theirs as formerly. This was agreed to, and a Schedule of Prizes was passed, and ordered to be printed for circulation.

The sum of 5*l.* was also voted for the encouragement of Honey Exhibits at other Local Flower Shows, the said sums to be at the discretion of the President, Secretary, and Treasurer. WILLIAM RAITT, *Secretary.*

The Society will hold its third Exhibition of bees, honey, hives, &c., in conjunction with the Dundee Horticultural Society's Exhibition, to be held in Dundee on the 5th, 6th, and 7th September, 1878.

The following is the Schedule of Prizes (open to all) :—

CLASS A.—HONEY AND WAX.

1. Largest and best harvest of super honey, the produce of one hive, 40*s.*, 30*s.*, 20*s.*

2. Largest and best harvest of super honey, the produce of one hive, in cases not over 5 lbs. each, nett, 40*s.*, 30*s.*, 20*s.*

(Exhibitors in Nos. 1 and 2 must furnish, along with their Entry Forms, a clear account of the means by which the results were obtained, describing the treatment of the stocks throughout the season, with dates of supering and removal.)

3. Best single super in wood, or wood and glass, over 20 lbs., 20*s.*, 15*s.*, 10*s.*

4. Ditto, 10 to 20 lbs., 20*s.*, 10*s.*, 5*s.*

5. Ditto, under 10 lbs., 15*s.*, 10*s.*, 5*s.*

6. Best sectional super over 20 lbs., combs separable and not over 4 lbs. each, 20*s.*, 10*s.*, 5*s.*

7. Best super in straw, over 10 lbs., 20*s.*, 10*s.*, 5*s.*

8. Ditto, under 10 lbs., 15*s.*, 10*s.*, 5*s.*

9. Best super of heather honey, over 10 lbs., 20*s.*, 15*s.*, 5*s.*

10. Ditto, under 10 lbs., 15*s.*, 10*s.*, 5*s.*

11. Finest straw super, not over 7 lbs.—Special Prize offered by Messrs. Scrymgeour and Sons, Dundee, the honey to become their property, 21*s.*

12. Prettiest design in honey-comb worked by the bees—First Prize, a honey extractor, value 29*s.*, offered by W. W. Young, hive-dealer, Perth.

Second Prize, offered by E. Bailey, fruiterer, Dundee, 10*s.* 6*d.*

13. Run or extracted honey, 6 lbs., in show glass, fruit blossom honey, 15*s.*, 10*s.*, 5*s.*

14. Ditto, clover honey, 15*s.*, 10*s.*, 5*s.*

15. Ditto, heather honey, 15*s.*, 10*s.*, 5*s.*

16. 2 lbs. wax, 7*s.* 6*d.*, 5*s.*, 2*s.* 6*d.*

17. Six sheets, impressed wax foundations, 10*s.*, 5*s.*

18. Special Prize, to the cottager gaining the largest number of Prizes in the honey classes, a bar-frame hive, offered by R. Steele, hive-maker, Fowlis by Dundee, value 20*s.*

CLASS B.—HIVES, &c.

1. Best bar-frame hive, complete with floor-board, super and roof, certificate and 20*s.*, 10*s.*

2. Cheapest bar-frame hive, suitable for cottagers, with floor-board and roof, 15*s.*, 10*s.*

3. Best honey extractor, combining cheapness with general efficiency, certificate and 20*s.*, 10*s.*

(*Note.*—Exhibitors in Nos. 1 to 3 must undertake to supply to Members of the Society any number of similar articles at the prices affixed to their exhibits.)

4. Best form of super for general use in an apiary, must be cheap, workable, and saleable, 10*s.*, 5*s.*

5. Best and neatest observatory or unicomb hive stocked with bees, 20*s.*, 15*s.*, 10*s.*

6. Best collection of apiarian appliances, not included in the above classes, 20*s.*, 15*s.*

7. Any new invention calculated by the Judges to be of advantage in bee-keeping, 15*s.*, 10*s.*

Entries close 31st August.

All honey, except entered for exhibition only, must be the *bonâ fide* produce of the exhibitor's own apiary, gathered in the natural way during 1878.

For forms of entry, and special rules, apply to the Secretary, WM. RAITT,
Liff, by Dundee.

IN consequence of an exceedingly changeable spring, followed by a hot, suffocating summer with a prolonged drouth, which dried up the sources of honey, the year 1877 has given few swarms and but little honey.—*L'Apicoltore.*

IN a letter to *L'Apicoltore*, Milan, Sig. Giuseppe Fiorini, who has undertaken the importation of *Apis dorsata* to Italy, remarks: 'I should be proud to be able to import this race of bees to our beautiful Italy, for I would like to have the names of our Italian apiarists praised as well as those of other nations, and that it might be said the Italians first imported *Apis dorsata* to Europe.'

IT is said in Devon, and the same is true in Cornwall—

'The West wind comes and brings us rain;
The East wind blows it back again:
The South wind brings us rainy weather;
The North wind cold and rain together.

When the sun in red doth set,
The next day surely will be wet;
But if the sun should set in grey,
The next will be a rainy day.

When buds the ash before the oak,
Then, that year, there'll be a soak;
But should the oak precede the ash,
Then expect a rainy splash!'

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

MR. PETTIGREW'S CHALLENGE—PROPOSED NEW JOURNAL—CENTRAL BEE ASSOCIATION.

By the *Journal of Horticulture* of December 20th, I see that Mr. Pettigrew once more advocates a competitive trial between Ligurian and black bees, to test their respective merits, and also one between hives of various kinds for the same purpose. Mr. Pettigrew must live very much outside the apicultural world if he is unaware that for the last six or eight years the very trial he advocates, and leads his readers to believe would be conclusive, has been going on in places innumerable, and that experienced apiarians have no hesitation in saying that Italian bees are superior to our native blacks in many respects, and that bar-frame hives of almost any kind are to be preferred to those in which the combs are fixed. These opinions have not been arrived at without 'repeated trials and approbation,' and would not, I am quite sure, have been given to the world upon an experience founded upon the operations of one year only. 'Bees do nothing invariably,' is a very old apicultural proverb, and one that should be known to so old and experienced a bee-keeper as Mr. Pettigrew is acknowledged to be. Why, then, will he persist in advocating a competitive trial between a limited few hives during one season only, when he must know that the results of one season might be negatived by those of the next, even with the same hives and the same stocks of bees? It is now, I believe, four or five years since Mr. Pettigrew first proposed a trial of the kind he wishes for in 1878; and although both that and a subsequent challenge were accepted by you, sir, as the champion of Italian bees and moveable combs, against his native blacks and straw skeps, no good, as far as he or the readers of his favourite organ are concerned, has resulted. Had he done as others have, and tested the matters he disputes in his own apiary, he might have now given us the result of his experiments, and have done some real good to those who are still blind followers of the blind. But no, this would not suit so bold a 'seeker after truth.' He has nailed his colours to the mast of black bees and straw skeps, and woe be to him who dares to say that there are better bees and better hives for those who will only learn how to manage them. Every advocate of advanced bee-keeping has, at some time or other, come under the ban of Mr. Pettigrew's displeasure, simply because his experience did not agree with that gentleman's; he is never open to conviction by fair argument, in fact, generally declines to argue, upon personal grounds. He professes to desire the march of improvement in apicultural matters, but objects to keep pace when black bees and straw skeps are likely to be left behind. It is high time he left off attempting to teach, and confined himself to relating his own experience, which is generally amusing.

He should have charity enough to believe that others are as earnest and sincere in their desire that the truth should be known as he is, and should respect the opinions that are advocated when backed by experience even although they go beyond his calculation.

I see by the *British Bee Journal* for January, that there are two new schemes on foot for the present year. The first to establish a Journal in connexion with the British Bee-keepers' Association. This will, I think, be reprobated by every right-thinking man as an attempt to injure the very author of its origin, and involve in its own downfall the greatest organ of apicultural advancement that this country has seen. Surely the Association might be contented with its well-merited fate, without seeking to injure the interests of the whole world of bee-keepers.

The other, to set on foot a Central Association, commencing with a nucleus of which Lincolnshire may well be proud. This scheme will have the hearty co-operation of all who have the interest of the British bee-keeper at heart, and a great future may well be prophesied for it if once the ball is set a rolling. That associations can be conducted successfully and profitably has been shown us by our Lincolnshire and Dundee brethren; and I feel confident that no better centre could be found round which to form an association that will be national in its intent, and honest in its purpose, than Grantham.

Put me down as a life member at once; and with hearty good wishes for the year we have just entered upon, believe me to remain, &c.—R. Symington. *Honeybank, Little Bowden, Market Harborough, Jan. 8th*, 1878.

BRITISH BEE-KEEPERS' ASSOCIATION.

Your announcement of the probable dissolution of the British Bee-Keepers' Association was not news to me. In a letter from Mr. Hunter I learnt that the two causes which were likely to bring about the winding up of the Association were, 1st, the non-payment by members of their subscriptions, and, 2ndly, the inability of the Association to start 'an organ' of its own. I am very sorry that the Association is likely to break up. The aims it had in view were, I am sure, those which every intelligent bee-keeper had at heart. Why members' names were kept on the list after their subscriptions were in arrears I cannot see. As I take it, the annual subscription paid by anyone was his title to membership; and when such subscription was not renewed at the returning date, he who neglected to pay it ceased to be a member. Let us hope, Mr. Editor, that when the revival of the Society takes place, or rather when another arises in its stead, that joined to the excellent code of 'ideas' which you offer for consideration, and which I for one should like to accept as rules, one other may be found, demanding the punctual payment of subscriptions year by year as a proof that subscribers have not ceased to take an interest in the Society.

Concerning the second cause for the dissolution of

the British Bee-Keepers' Association, my thoughts were these, when I received notice of the desire of the Committee to establish a Journal: 'What on earth do we want with another Journal? why enter upon an undertaking incurring such an outlay of capital; and for what? it can only be to compete with another Journal, highly valued, and justly valued so highly, by all British bee-keepers who read it. A second Journal is not wanted in my opinion, and I should not think of subscribing to what I deem an unnecessary expenditure.' Such were my first thoughts upon this subject, and I still think the same. I hope that other members will as freely express their opinions.—P. H. Phillips, *Offley Lodge, Hitchin, Jan. 8th*, 1878.

CENTRAL ASSOCIATION OF BRITISH BEE-KEEPERS.

I am glad to see that you are taking the initiative in establishing 'The Central Association of British Bee-keepers,' which I feel sure will be carried on with spirit, and will be really a representative society of the foremost men in the bee-keeping world. I have never been a subscriber to the moribund Association, as I could never discover any good result arising from it. I shall have much pleasure in becoming a life member of the Central Association by a donation of two guineas, provided sufficient names are enrolled to put the new society on a firm basis, and on condition that the *British Bee Journal* is the official organ of the Association. I quite agree with Mr. Henderson that the publication of another Journal will not be conducive to the best interests of apicultural science. Indeed, the number of bee-keepers is not, and will not be for some years, large enough to support another Journal specially devoted to bee-keeping. At the same time I must dissent from your suggestion that Grantham (or any other provincial town) should be the head-quarters of the new Association. No doubt many places are as central in point of distance as London, but this should be borne in mind, many residents in the country are always glad of an excuse to visit 'the little village,' whether it be to a bee-show, a cattle-show, or some other *quasi* business, and at the same time stay a few days on pleasure bent, or perhaps find some other business which may help to pay the expense of the trip, which, although Grantham *may* be a very attractive place (I have never been there), I think few persons would make a long journey there for bees and bees alone.

Again, this should not be lost sight of in fixing a place for the great show of the Association; every railway communicates directly with London, thereby avoiding transhipment at junctions and handling by ignorant porters of such delicate goods as these of which the exhibits at bee-shows consist. You will, I am sure, understand that it is in no spirit of fault-finding that I make this suggestion. And I hope in the February number of 'The' *Journal* to see others from, very likely, more practical men than myself.—'Dr. Pine.'

[If our correspondent will refer to our remarks, he will find that our suggestions contemplated that the Central Association Shows should be held in a different town every year, in connexion with some great agricultural or horticultural society's meeting.—(*See* proposed rule No. 6.)

In rule No. 10, by local shows, we meant such as may be conducted by individual Societies, without regard to locality; and whether they be at Sunderland or Southampton, Yarmouth or Penzance, so that they be affiliated, we would help them as far as the Association means would allow.

In suggesting Grantham as the *locale* of the Central Committee, we had in view the fact that there are those in the immediate neighbourhood who know how to establish associations, get up shows, and render a honey fair a success.—Ed.]

FOREIGNERS AT LOCAL SHOWS.

I am obliged to 'A Warwickshire Bee-keeper' and 'W. Martin' for explaining the circumstances under which they were exhibitors at the Wolverhampton Show, and can assure them that I don't wish to quarrel with either of them, nor do I grudge them the prizes which they won. My desire was simply, as stated in my letter, to ascertain the opinion of bee-keepers generally as to the fairness of allowing foreigners to compete at local shows—and I find that at least one Honorary Secretary agrees with my opinion that it is a mistake to do so.

I am sorry that offence should have been taken at the term 'foreigners,' and must beg to say that it was not used in any disrespectful sense, nor did I invent it, I only took up the expression used in the extract quoted from your report of the Show, viz., that local exhibitors (of whom there were few) were beaten out of the field by 'foreigners.'

I am quite content to be called a 'novice' if it pleases the 'Warwickshire Bee-keeper,' as I don't pretend to be anything else.

I don't think Mr. Briscoe's famous hive is a fair test for ordinary bee-keepers; if I am not mistaken, it far outstripped all his other hives both in 1876 and 1877: besides, though not many miles from Wolverhampton, Albrighton is in Shropshire; its surroundings are very different, and I should fancy it is more sheltered than most parts of Staffordshire.

With all due respect to the opinion of 'W. Martin' and the 'Warwickshire Bee-keeper,' I still think that it is a mistake for secretaries to invite strangers from a distance to unrestricted competition, for though their supers may improve the look of a show, I think that they defeat its object, which I suppose is to encourage bee-keepers in the neighbourhood. I think that much more local interest would be shown, if, as Mr. Norton says, 'Shows in connexion with local associations were almost entirely restricted to exhibitors in their own districts, with, say one or two "open prizes" just to show local bee-keepers what is being done in other parts of the country.'—J. W. N.

QUICK DRIVING.

I think your correspondent, 'Isaac Lake, Salop,' is quite right in his idea, that 'the warm, bright sunbeams, entering so directly into the hive, caused the bees to leave their home much sooner than they would otherwise have done;' but he will doubtless also have noticed that bees always go best about the middle of a warm, sunny day. I think, however, that the direction of the wind has also a good deal

to do with it. I have scarcely ever succeeded in driving bees either quickly or well, if there was a northerly wind blowing; but if the wind was southerly, I have succeeded well, even though the day was dull, and no sun to be seen. I have also found that skeps containing plenty of bees, and brimfull of straight combs, extending quite from side to side of the hive, are much easier cleared than hives not full of comb, or in which the combs are much sub-divided.

I cannot say my experience is extensive, as I have only driven fifteen skeps in all, and only saw manipulation for the first time at the East of Scotland Show at Dundee last September; but I make a practice of jotting down my notes of operations as I perform them, so I am not merely writing at hazard.—G. A. R., *Braes o' Angus.*

TRANSFERRING—TAPES—PROPOLIZING.

In transferring, I have always found it difficult to tie a good knot in a honey-soaked tape with honey-smeared fingers, and have found small drawing-pins very handy. I just bring the two ends of the tape together, and push the pin through both into the side of the top bar. When removing the tapes, the point of a knife instantly removes the pins, and the tapes not being cut, will do again and again.

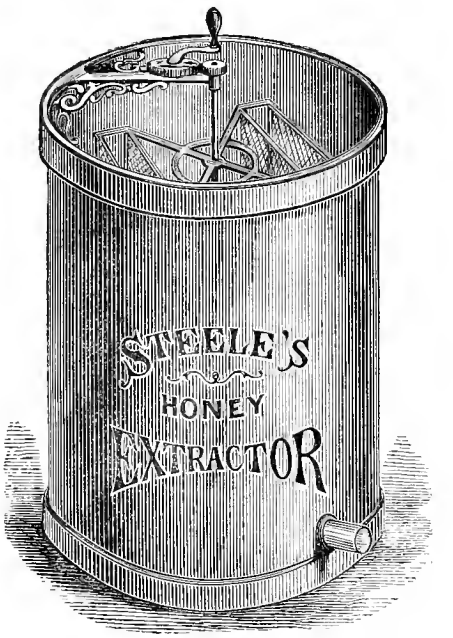
A friend of mine blackleads the edges on which the ends of the frames rest, to make them slide more easily. Perhaps this will prevent propolization? I only heard of it recently, and so have not tried it. What do you think?—'Dr. Pine,' *Jan.* 2.

[We do not think anything will prevent bees using propolis, in all sharp angles and cracks; grease will, however, prevent it sticking.—Ed.]

BEES ON THE OLD SYSTEM.

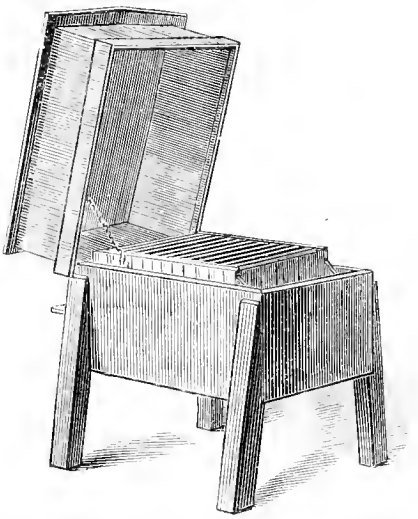
Having an hour or two to spare about Christmas time, I took a morning walk, about three miles, to see an apiary that is 'mismanaged' on the let-alone system. It is situated near a cottage belonging to a gentleman farmer, but who does not reside there himself. There are about thirty-four stocks altogether, and they have never taken a pound of honey from them at all since they have kept them, and I have known them for about ten years. The same farmer has about the same quantity of stocks at each of two other apiaries a few miles further on, and the man at the farm says they are all in about the same plight; some of them were pretty well covered up, while others had only an old bag laid on the top, or a bit of flat board; there were three that had no covering whatever. The man allowed me to turn them up; the bees appeared quite healthy, but some will be sure to die for want of feeding; the heaviest stock is in a large cement cask; the man says they had four swarms go together about four years ago, and he hived them in it. I turned it up, and it was a fair weight, and had plenty of bees; the bottom of the combs were mouldy and rotten; but they reached quite to the bottom of the cask. I asked the man why the old gentleman did not let him take some honey, but he said he would never let him do so; and there were several stocks that would die every year, some of the others would swarm and go into the empty combs. In turning some of the skeps up, I saw striped bees, so that evidently Ligurian drones had mated with some of their queens.—A W. B.

STEELE'S HONEY EXTRACTOR.



I send you the accompanying cut of my honey extractor, which took the bronze medal at Edinburgh show, and, in an improved form, took first prizes at Dundee, Carlisle, and Blairgowrie (1877). The can is made of strong coated iron, the internal work is all metal, and the gearing is of brass. The latter is mounted on 'Novice's' bracket, and works smoother than I could get his gearing to do. I propose, however, to get a new pattern made after his model, which is universally admired for its compactness and simplicity, only I shall use brass instead of iron. The picture does not show the interior fully, but there are spaces for employing two bar-frames at a time. It would be comparatively easy to adapt it to hold four combs; but as any person could easily empty two combs while the other two were being uncapped, I cannot see any advantage in having it made for four. The revolving cage is complete for bar-frames; for emptying loose comb a pair of cages are needed in which the combs are enclosed. A treacle valve is by some considered an improvement, but as it adds considerably to the weight and expense, and does not seem to give much satisfaction, I have not shown it in the figure. The open tube as shown can easily be corked when not required; and when in use a little bag of cheese-cloth hung to it acts as the very best honey strainer. While the machine is at work, the honey may be straining out, or it may be allowed to accumulate in the can to the amount of 20 or 25 lbs. The price of the machine as shown is 25*s.* Extra cages for loose combs, 4*s.* per pair. Treacle valve, extra 2*s.*—R. Steele.

THE DIVISIONAL HIVE.



The above hive is composed of ten sections (made of best pine and neatly dovetailed), each 15 by 9 in., with double ends. The outside ends which form the wall of the hive are each 1½ in. wide, and the inner ends and top and bottom rails ⅝ in. wide. The glass window at back is in a frame, which will effectually divide the hive at any part required. The frames are perfectly rigid, being kept in position by two springs at the back. The floor-board, which is reversible, is held in its place by thumb-screws, and, when released, fall on runners, to allow it to be easily withdrawn. The sections are now made so that honey may be extracted from the comb as easily as with any bar-frame, as both sides of the comb are allowed to go close against the cage of the smelator.

Price, including wax-guides throughout and clasps to sectional super, 40*s*. More detailed particulars to be obtained of the inventor and sole manufacturer, S. Simmins, The Apiary, Crawley, Sussex.

N.B.—Swarms supplied with the above hive at prices advertised in another column.

HOW TO PREVENT THE ADULTERATION OF HONEY.

We believe the successful solution of this problem, to a very considerable extent, lies in the hands of the producers. If we all join in an earnest effort, it will only be a question of a season or two when an end will be put to this nefarious business. We want through our local papers and personal intercourse to warn school dealers and consumers in selling and buying *candied* honey. Ring all the charges of purity, flavour and price.—Packing comb honey into glass jars opens the door for adulteration; now, we want to stop this, and we can effectually: but we fancy that we hear some dealers sing that same old song that 'broken comb honey must be saved, and this is the only way to do it.' Producers will stop sending broken combs, stop shipping piece boxes, extract the honey from all such, and market only those frames, or caps that are well secured all round. Such honey can be transported all right. Harbison never has any claims against him for broken honey, and he collects his crop from all over San Diego county, California, sends it to San Francisco, where he breaks bulk, and re-ships to New York. It is said his combs are seldom broken. He attributes his success to the fact that he never crates frames in which the combs are not well secured all around, and cells capped. If producers would all do that, their honey would reach consumers nice and dry, and dealers would have no excuse for cutting up the combs and packing them in jars.—*American Bee Journal.*

CANDIED HONEY.

The question is so frequently asked, how to prevent honey from candying, and with such seeming desire to possess the secret, that we have determined to gratify the curious, and tell them all about it; but we wish to preface our information with the assurance that we discountenance, as disreputable, the adulteration of honey in any shape or manner. The candying of honey is caused by the over-saturation of sugar; by this expression, we mean too little water, and too much sugar. All the scientific research and learned discussions on this subject that have ever come under our observation, have failed to develope a more simple or rational reason than this, and the same can be said regarding the remedy. You first reduce the body to a thin, limpid state by adding sufficient water. It is only necessary to warm the honey to thoroughly incorporate it with the water; it need not be boiled. This makes the body so thin that it is necessarily impossible for it to candy.

Buyers object to it in this watered state, and in order to retain its body without renewing its liability to congeal,—some have been adding a sufficient quantity of that non-crystallizable substance known as glucose. Honey thus 'processed' will not thicken, but it is certainly *not* pure. It is claimed, and we have no doubt it is true, that by the aid of this 'processing,' thousands of pounds of comb honey, nice in itself, but stored in such awkward and unsightly surplus receptacles, furnished by lazy and improvident bee-keepers, have been sold, that would otherwise have proved a drug. This is an excuse—though only a poor one, for such 'doctoring' process.—*American Bee Journal.*

SPRING MANAGEMENT.

I do not feel like instructing the merest novice about *wintering* bees, but I may suggest something of use to the beginner, in regard to equalising and bringing up a lot of weak stocks.

When spring opens contract the entrances, and make all tight and warm over the bees. Guard all the weak stocks very carefully from the strong ones, and contract their hive room to accommodate the size of the swarm. Take away extra combs, but leave plenty of honey. During cold, windy days, discourage them from flying, by shading the entrance of the hives.

It is necessary that at least one-third of the entire number of stocks should be good and strong. When settled warm weather arrives (say about the 1st of May, but not before for this latitude), begin to equalize. Take from the centre of each strong stock two combs of hatching brood,—bees with them, if sure you leave the queen in her own hive, and give one of these combs to each weak stock, placing it in the centre of the cluster. Then make all warm again and wait ten days, supplying the strong stocks with good empty worker-combs to replace those removed, and keep a record of your operations.

Always select the oldest or hatching brood to give the weak ones.

If hives have plenty of honey, I don't think it pays to feed them to stimulate breeding in the spring.

The above is just what I practise every spring, if I have poor stocks; I find it pays well, though it makes some trouble. PRESCOTT YOUNG.

Freeport, Ill.

A GREAT NATIONAL INDUSTRY.

Agriculture in its various branches, mining, and manufacturing, are the great industries which lie at the foundation of individual and national wealth. They are the great producing factors. Upon them all other pursuits depend. To add to these another productive calling, which can be followed by any who desire, in all parts of our country, will be to add to the general wealth, and to give a means of competence and happiness to our people. The modern improvements in bee-keeping—including the moveable-comb hive, the honey extractor, comb-foundation, and the safe methods of wintering—make it a pursuit which may be indefinitely developed. Indeed, it may be so followed, that, from its wide diffusion over our country, and from the value of its products, it may be truly called a great national industry.

1. The products of some kind of labour, for instance some branches of fruit-growing, are so perishable that they must be sold as soon as ready for market, and as they will bear transportation but a short distance, the producer is put to a great disadvantage. The products of bee-keeping, honey and wax, may be kept an indefinite time, and may be transported to all parts of the world.

2. The demand for honey and wax may be increased beyond all our present conceptions. Since the great success of comb-foundation, there is no doubt but all the wax produced will find a ready sale at advanced prices. Honey, at present, can scarcely be called an article of diet. It is a luxury met with now and then; but in the larger number of families, hotels, and restaurants, is never seen. When its excellence and cheapness as an article of diet become known, it will be more widely used, and all that can be produced will be readily consumed.

3. Bee-keeping can be followed in all parts of our domain, north, south, east, and west. In nearly all localities bees will do well. There is scarcely any locality in which they will not more than pay their way. In the country and in villages, there is little probability of over-stocking for years to come. In case a locality becomes over-stocked, some keepers must remove to unoccupied territory. In cities, a few hives can be profitably kept, as is shown by the good success of Mr. Muth, of Cincinnati.

4. Any intelligent person, who will give attention to it, can learn the business of bee-keeping. The theory of it is plainly taught in books and the *Bee Journal*. The practice can be acquired by any intelligent person who will get a hive of bees and go to work to apply the theory he has learned by careful reading.

5. The business can be begun with small capital, and on a very small scale. Any industrious person can get one, or a few swarms of bees in box-hives. He can transfer them to moveable-comb hives. Then as he acquires knowledge and skill in the work, his bees will increase. He can make his income from his bees more than pay all the outgo, and soon have a stock as large as he desires, as the product of the one or few with which he begun.

6. If he desires, he can increase his business to any extent. His own hives will give him the bees. He can establish apiaries at as many points as he chooses. He can superintend these apiaries, and attend to purchases and sales. Followed in this way, bee-keeping may become a business demanding the best efforts of the ablest business men. The report is just at hand that Capt. Hetherington, of Cherry Valley, N.Y., has 3000 colonies, and that his income from them for the present year will be about $30,000. This is only an instance of what may be done by many others.

7. No business can succeed in the long run which does not give a fair profit. Without going wild over the reports of the immense profits realised in a few instances from keeping bees, there seems no doubt that when taken up as a regular business, and intelligently pursued from year to year, it will pay a profit as large as most other callings. Possibly, for a few years, men already in the business, and following it with energy, may make a larger profit than most other callings give. But this will not continue long. Labour and capital will flow in this direction until profits are equalised.

A calling that produces valuable staple articles, that may be followed in all sections of the country, of which intelligent people can readily acquire the theory and the practice, that may be undertaken on a small scale and with a very small outlay, that may be developed to such dimensions as to give scope to the powers of the ablest business men, and that yields a fair profit on the investment,—such a pursuit surely has in it such elements as may enable it to grow into an industry that may truly be called national.

But it is said by some that there are such great risks to be run in bee-keeping, that the business partakes of the nature of a lottery, and that no such business can become of national importance. These objectors will enumerate the moth, foul-brood, poor seasons, dangers of wintering, and over-stocking the market, as good reasons why the business of keeping bees can have no large development.

1. As to the moth, the bee-keepers who have had the widest experience say, that it gives no trouble when Italians are kept in hives that have no lurking-places for the enemy. Upon this point the testimony is, in effect, unanimous.

2. Foul-brood has been in some places a serious difficulty. But care can, in most cases, keep it out, or eradicate it when it appears. Some of the best bee-keepers, who have had to contend with the disease, tell us that salicylic acid, used according to their directions, is a sure cure.

3. Poor seasons are an injury, but poor seasons come to nearly every business,—to bee-keeping no more than to others. In calculating the profits of bee-keeping, we must make allowance for poor seasons. After making this allowance, the experience of the best-established keepers shows a good profit.

The dangers of wintering seem about to disappear. Perhaps it is not too much to say that they have disappeared. Those that have been sure in the fall of young bees and healthy stores, and who have given them suitable protection, either in-doors or out, report success. They tell us, they have no fear of wintering. Young bees, healthy stores, and proper protection, can be secured by the intelligent bee-keeper. He can be sure of them. They are entirely under his control. Hence it does not seem rash to say that the dangers of wintering are, for the intelligent, energetic bee-keeper, among the things that were.

5. Lastly, we have the objection that the markets will be overstocked, and hence prices will fall below a paying basis. This objection has been so earnestly urged that it is worth while to look at it somewhat closely. I will only say here, that the history of nearly every business shows that as the supply of an article increases, and the prices fall, the demand increases so largely as to make the aggregate profits greater than they were when the production was less, and the prices higher. So in regard to honey; if the prices fall a good deal below what they now are, this reduced price will cause honey to be taken by large numbers, who now do not use it at all; and this consumption will so increase the demand, that the producer can sell 50 lbs. where he now sells 1 lb.; and so make much larger profits, in the aggregate, in spite of the lower prices.

The argument in favour of bee-keeping becoming a great industry of national importance seems to me to be clear and strong. The objections do not seem to be well taken. I think there is no doubt but capital and intelligent labour will be attracted to this business, and that in the course of a quarter of a century it will have a growth that will surprise us all.—O. Clute, *Keokuk, Iowa.* —(*American Bee Journal.*)

GRAPE SUGAR.

A great deal of attention has, of late, been directed to the use of grape sugar as a cheap substitute for honey for wintering bees. As the solid crystalline portion of honey is pure grape sugar, there is no reason why a pure article of grape sugar should not be a perfect substitute for it. Perhaps there are some who would like to experiment with it; and as it may be more convenient for them to manufacture it themselves, than to buy, I will describe a process for manufacturing it on a small scale.

Grape sugar is most economically prepared by artificially modifying starch. This can be done in two ways, which I will describe:

To 10 parts starch (or bolted white corn-meal), add 1 part bruised malt and 40 parts of water, all by weight. Heat the malt and water to about 150° Fahr., and then add the starch, stir constantly and raise the temperature to about 170° Fahr., and keep at this degree until the starch is all converted, and when all complete, bail, filter, and reduce to a syrup. This is glucose or impure grape sugar. It contains a great deal of mucilage and is very much inclined to sour.

The best process, although a little more troublesome, is as follows:

Twenty-five parts of starch will require about 100 parts of water, and 1 part of oil of vitriol. The acid should be diluted by adding it slowly to about 10 times as much water, in an earthen vessel.

Put the water into a copper kettle, on a wooden tank, heated by a copper steam coil (don't use any other metals, excepting lead), bring it to a boil, then add the diluted oil of vitriol; and while the liquid is kept boiling, gradually add the starch, which should be mixed with water enough to make it of a creamy consistency. Avoid lumps, and be very careful and *do not let it burn* during the process of boiling, as that will render it *poisonous to the bees.* Replace the water as it evaporates. The starch is first converted into *dextrine.* It will require from 6 to 8 hours' continuous boiling to thoroughly convert it into grape sugar. The acid does not unite with the starch, but only acts by its presence. When the conversion is complete, the acid must be thoroughly removed by the addition of pure carbonate of lime. A good article of powdered chalk will do. Add it in small quantities until the liquid ceases to effervesce upon the addition of more chalk. Stir the liquid while adding the chalk. It will require a little more chalk than the oil of vitriol used.

After neutralisation, the liquor should be strained into a tub, to allow the gypsum, or sulphate of lime, to settle; which will require about 24 hours. Keep the vessel closely covered, and use every precaution to prevent souring. The clear liquor should be drawn off and evaporated to the consistency of syrup, again allowed to settle, and then reduced further if you wish it to crystallize.

The above process will do very well for bee food, but it will be too dark and impure for a commercial article, and required to be filtered through animal charcoal to whiten it.

Now let everybody try their skill, and let us hear the result. If grape sugar is a reliable substitute for honey, and only costs 2 or 3 cents a pound, we can extract every drop of honey from the comb and winter on grape sugar.—S. C Dodge, *Chattanooga, Tenn.* — (*American Bee Journal.*)

NEW RACES OF BEES.

(*From the 'American Bee Journal.'*)

Some years ago an article appeared either in *The American Bee Journal* or in one of our apicultural papers, giving an account of a bee on the Amoor river that was thought would prove of value in this country. Has anything further been heard of it?

Correspondence has been opened by several American bee-keepers, to obtain information about *Apis dorsata*, of Java, and I hope soon to have something to communicate respecting it.

I received a letter to-day from a gentleman who is skilful in handling bees. He thinks of going to Europe in the spring to import the Cyprian bee for himself and to fulfil several orders from friends; and I know of several who have ordered them from German breeders. So there is a fair prospect of having them tested here the coming season.

Honey is now put upon the market in such attractive forms by our best apiarists, and such skill has been attained by a large number in the practical work of the apiary, and that number more rapidly increasing every year through the knowledge spread by our journals, that we must look in new directions for advance in our pursuit. Science must come to our aid and suggest new methods of culture. New races must be tried. Much remains to be done before we can feel assured that we have reached the best results.

I would here return my thanks to Mr. Benton for the interest he has shown by translating Mr. Edward Cori's article on *Apis dorsata* for the *The American Bee Journal.*

Shortly after the publication by the Harpers of Alfred Russel Wallace's Malay Archipelago, 1869, I sent some extracts to the Journal on *Apis dorsata.* As an interest is springing up in this bee, both here and in Europe, I think it desirable to publish them again, that a greater number of readers may enjoy the promising facts given, which I consider even more encouraging than the statements given given by Mr. Cori.

Wallace found this bee on the island of Timor, and mentions bees and their products in Borneo, Celebes, Gilolo, and the Aru Islands. Possibly *Apis dorsata* exists on many of the islands, as well as in Java and Timor. Mr. Woodbury, of England, received specimens of this bee and comb from Ceylon, but failed to import it.

In visiting a house in Borneo, Mr. W. writes: 'Almost all the people, however, were away on some excursion after birds-nests or bees-wax. . . The honey bee of Borneo very generally hangs its combs under the branches of the tappan, a tree which towers above all others in the forest, and whose smooth cylindrical trunk often rises 100 ft. without a branch. The Dyaks climb these lofty trees at night, building up their bamboo ladder as they go, and bringing down gigantic honey-combs. These furnish them with a delicious feast of honey and young bees, besides the wax, which they sell to traders, and with the proceeds buy the much-coveted brass wire ear-rings, and gold-edged handkerchiefs, with which they love to decorate themselves. In ascending durion and other fruit trees, which branch at from 30 to 50 feet from the ground, I have seen them use the bamboo pegs only, without the upright bamboo, which renders them so much more secure.'

Mr. W. describes very minutely how the pegs are driven in the tree, and the bamboo ladder formed as they ascend these gigantic trees. One of the illustrations (p. 204), copied from a photograph, represents a Timorese with a small water bucket in one hand, made of an entire unopened palm-leaf, and in the other a covered bamboo, which 'possibly contains honey for sale' . . .

'Besides ponies, almost the only exports of Timor are sandal-wood and bees-wax. The sandal-wood is chiefly exported to China, where it is largely used to burn in the temples and in the houses of the wealthy. The bees-wax is a still more important and valuable product, formed by the wild bees (*Apis dorsata*), which build huge honey-combs, suspended in the open air from the under side of the lofty branches of the highest trees. These are of a semicircular form, and often 3 or 4 feet in diameter.

'I once saw the natives take a bees' nest, and a very interesting sight it was. In the valley where I used to collect insects, I one day saw three or four Timorese men and boys under a high tree, and, looking up, saw on a very lofty horizontal branch three large bees' combs. The tree was straight and smooth-barked, and without a branch, till at 70 or 80 feet from the ground it gave out the limb which the bees had chosen for their home. As the men were evidently looking after the bees, I waited to watch their operations. One of them first produced a long piece of wood, apparently the stem of a small tree or creeper, which he had brought with him, and began splitting it through in several directions, which showed that it was very tough and stringy. He then wrapped it in palm-leaves, which were secured by twisting a slender creeper around them. He then fastened his cloth tightly around his loins, and producing another cloth, wrapped it around his head, neck, and body, and tied it firmly around his neck, leaving his face, arms, and legs comparatively bare. Slung to this girdle he carried a long thin coil of cord; and while he had been making these preparations one of his companions had cut a strong creeper, or bush-rope 8 or 10 yards long, to one end of which the wood torch was fastened, and lighted at the bottom, emitting a steady stream of smoke. Just above the torch a chopping-knife was fastened by a short cord.

'The bee-hunter now took hold of the bush-rope just above the torch, and passed the other end around the trunk of the tree, holding one end in each hand. Jerking it up the tree a little above his head, he set his foot against the trunk, and, leaning back began walking up it. It was wonderful to see the skill with which he took advantage of the slightest irregularities of the bark or the obliquity of the stem to aid his ascent, jerking the stiff creeper a few feet higher when he had found a firm hold for his bare foot. It almost made me giddy to look at him as he rapidly got up—30, 40, 50 feet above the ground; and I kept wondering how he could possibly mount the next few feet of

straight, smooth trunk. Still, however, he kept on with as much coolness and apparent certainty as if he were going up a ladder, until he got within 10 or 15 ft. of the bees; then he stopped a moment and took care to swing the torch (which hung just at his feet) a little towards these dangerous insects, so as to send up the stream of smoke between him and them. Still going on, in a minute more he brought himself under the limb, and in a manner quite unintelligible to me, seeing that both hands were occupied in supporting himself by the creeper, managed to get upon it.

'By this time, the bees began to be alarmed, and formed a dense, buzzing swarm just over him, but he brought the torch up closer to the hive, and coolly brushed away those that settled on his arms and legs. Then stretching himself along the limb, he crept towards the nearest comb and swung the torch just under it. The moment the smoke touched it, its colour changed in a most curious manner from black to white, the myriads of bees that had covered it flying off and forming a dense cloud above and around. The man then lay at full length along the limb, and brushed off the remaining bees with his hand, and then drawing his knife, cut off the comb at one slice close to the tree, and attaching the thin cord to it, let it down to his companions below. He was all this time enveloped in a crowd of angry bees, and how he bore their stings so coolly, and went on with his work at that giddy height so deliberately, was more than I could understand. The bees were evidently not stupified by the smoke or driven away far by it, and it was impossible that the small stream from the torch could protect his whole body when at work. There were three other combs on the same tree, and all were successfully taken, and furnished the whole party with a luscious feast of honey, besides young bees, and a valuable lot of wax.

'After two of the combs had been let down, the bees became rather numerous below, flying about wildly and stinging viciously. Several of them got about me, and I was soon stung, and had to run away, beating them off with my net and capturing them for specimens. Several of them followed me for at least half a mile, getting into my hair and persecuting me most pertinaciously, so that I was more astonished than ever at the immunity of the natives. I am inclined to think that slow and deliberate motion, and no attempt at escape, are perhaps the best safeguards. A bee settling on a passive native probably behaves as it would on a tree or other inanimate substance, which it does not attempt to sting. Still they must often suffer, but they are used to the pain and learn to bear it impassively, as without doing so no man could be a bee-hunter.'

I consider this a very remarkable description. Very few men not practical apiarists would have observed as much and stated it as clearly. I regret that the arrangement of these 'three combs' is not given. It is to be hoped they were parallel and not a unicomb arrangement, lengthwise with the limb.

Echoes from the Hives.

Dundee.—'You will see by the prize schedule forwarded that we had put off "death's counterfeit" before receiving your life-giving word. Whatever may happen we do not mean to give up the ghost *just yet*. You will observe various changes in the Dundee schedule—improvements perhaps. We increase honey exhibits at the expense of hives, &c., separate raw honey into three classes, encourage the inventive by offering a handsome prize for fancy designs, remove the 20*s.* restriction on price of hives, throw out storifying hives, also Ligurian bees, and add prizes for appliances and inventions.'

[The above comes from a member of the East of Scotland Association, and argues that about Dundee there is life in the bee keeping cause. In 1876 we had the pleasure (*and honour*) of making the personal acquaintance of numerous 'head-centres' of bee-culture at the great show which took place at Dundee, and from the *esprit* then exhibited we are not surprised at the early issue of their programme.

It is a significant fact, that the wish to obtain specimens of that desirable acquisition, 'the best hive,' has induced the managers of the Association to ignore the question of price, which, when limited, 'cribs and cabins' the inventive genius, and 'confines' the aspirations of those who might evolve 'perfection,' and give *patterns* for smaller wits to practise on. It is also substantial evidence that the hives at present in use do not give entire satisfaction, or that at least something better is wished for than 20*s.* can purchase.

One other singular fact is rendered patent—viz., the East of Scotland has ignored the storifying system which has rendered the West so famous, and is 'going in' for *appliances and inventions*. Who, after this, shall prate of hives that shall be universally acceptable?—Ed.]

Barcaldine.—'My bees are wintering well under the quilt. Many thanks to the editor of the *B. B. Journal*.'—Peter McPherson.

BRITISH BEE-KEEPERS' ASSOCIATION.

On Wednesday, January 30, a meeting of the British Bee-keepers' Association was held at Beaufort Buildings, Strand. Mr. Cowan in the chair. Present: Messrs. Atlee, Cheshire, Freeman, Henderson, Hooker, and Hunter. A letter was read from Mr. Fox Kenworthy tendering his resignation of the secretaryship, and expressing his grateful sense of the kindness of the Committee during the time he had held the office. Mr. Hunter, at the request of the Committee, consented to take charge of all papers connected with the Association till the adjourned General Meeting. Measures were taken to audit the balance-sheet, and to hold the meeting at an early date.

NOTICES TO CORRESPONDENTS & INQUIRERS.

To Subscribers.—We have to regret the loss, owing to the fire, of the proofs, copy, and types of the conclusion of the 'Bee Bibliography;' two letters from W. Carr; several queries and replies thereunto, together with other correspondence. This, we trust, will be sufficient apology for their non-appearance. We had purposed re-commencing the publication of Dr. Evans's poem on 'Bees' this month, and had in type a large portion thereof, but the fire has destroyed this also. We have likewise to lament the destruction of the volume itself; and as the copies of this work are exceedingly scarce, the loss is more than personal.

J. B., *Darlington*. If this should meet your eye, please send name and full address. We cannot reply as above.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 59. Vol. V.] MARCH, 1878. [Published Monthly.]

Editorial, Notices, &c.

MARCH.

The past month of February has been so unusually mild that in our neighbourhood the spring flowers have appeared long before their usual time, and bees have been gathering merrily. Wallflowers are their chief source of supply, and regarding their extreme earliness we offer, by way of a hint, the suggestion that it may be partly due to their being plants from seed self-sown in the autumn of 1876, and transplanted in the spring of 1877. They do not acquire 'a pleasing habit' during their long period of summer growth, but, in comparatively mild weather, abundance of flowers will be comeatable at Christmas, and they, with crocuses and the blossoms of shrubs and trees, will form a good early source of supply for bees. We have mended our plantation of palm-bearing willows, some of which are already in blossom, but not sufficiently to be a source of great attraction to the bees who, however, manage to find a scant supply of natural pollen, which gives a hint that artificial pollen may be offered.

In offering directions for the management of bees, it should always be remembered that we are located to the south of England about nine miles westward of London, and probably our bee flora present themselves, if not quite as early as in the *more* southern and western districts of England, at least sufficiently early to indicate in a general way what should be done as the season advances.

Effects of the Mild Weather.—Mrs. Tupper, in her admirable essay on 'Bee-keeping,' quoted on pages 204 and 205 of the *British Bee Journal* for March 1876, says of bees, and wintering them, 'In the coldest weather they remain in a semi-torpid state, and use but little honey.' Yet a few lines further on she says, 'Under any circumstances it has been proved that bees consume much less honey when protected in winter,' and she gives statistics that prove the latter assertion. These statements appear at first sight to be irreconcilable, but in reality they perfectly agree, as a little consideration of the facts of the case will show.

The proposition is, that in the coldest weather bees (out-of-doors) consume but little honey, but they consume much less when protected (*i. e., housed in cellars*) in winter. Now, 'housing in cellars' in America means, '*protection' from alternations of heat and cold*; and if Mrs. Tupper had said as much, her observations would have been more easily reconcilable. English bee-keepers have so seldom been visited with weather so cold as to render the housing of their colonies necessary, that the rule adopted has been to leave them on their summer stands with, generally, a trifling additional protection against extreme cold, but, as will be understood, no additional protection from the evils that may arise from the atmosphere attaining too high a temperature. In cellars, as they are called in America, though often they are huge out-door buildings, with walls of great thickness, the whole being covered with several feet of snow, banked around to prevent alternations of temperature, yet sufficiently ventilated to ensure its being low enough to prevent activity in any great degree, the bees remain, if the ventilation is properly managed, in a state of semi-torpidity during several months of the winter, and consume very little food, as is the case with bees on their summer stands out-of-doors during severe weather; but the latter, unlike the former, are liable to alternations of temperature which, if we may use the term, expand and contract them until they lose their elasticity and become weak and useless. The idea of expansion and contraction may appear whimsical, but is *de facto* correct; and the process can in no way be better illustrated than by the effects of the weather during the past month, and the even tualities that may arise therefrom. There were about the beginning of the month, a few days of frostiness with cold winds, necessitating the contraction of hive-entrances and other means for the protection of hives from cold; and had that state of weather continued, the bees would have remained 'semi-torpid,' and would have

consumed but little food; and as regards ventilation, the wind alone would have aided the bees, for the alternating pressure and attenuation of the atmosphere, as it rushed past in fitful gusts, would have caused such displacement from, and restoration of air to, the hives, as would have prevented unhealthy results. But the frostiness did *not* continue, and, as a fact, the cluster of bees which, by the denseness of the cold, had contracted to the smallest compass for heat-preserving purposes, began to expand, and the mild weather continuing, they, as a natural consequence, began to search for means of livelihood for themselves, and for the wherewithal to provide for future generations of bees, which their instinct taught them to endeavour to produce. In such cases, weak and unguarded stocks are likely first to fall a prey to those stronger and more able to attack than the former to defend, and often the hives that show greatest activity at their entrances are but the scenes of ruthless robbery and murder; but in the present season, the prevailing mildness has enabled the bees to obtain an income, scanty though it may have been from the sources described; and we think we may safely assert that breeding is now the order of the day. Activity and breeding, as is well known, are attended with consumption of stores; and if the centre of the nest becomes occupied with brood, it will be manifestly impossible for the bees to cluster as closely as before, besides which, they will have the brood to maintain at the requisite heat,—facts which, if cold weather should set in, may be inimical to the welfare of the colony. These facts point also to the necessity for the prevention of loss by starvation, a danger commonly existent during mild winters, but not always appreciated in time to prevent mischief.

Many bee-keepers have an idea that bees are possessed of foreknowledge that enables them to prepare for the future, and that, if let alone, they will eke out their stores and not begin breeding, or run any of the well-known risks, until the weather renders the former safe, and prevents the latter altogether; and in this 'fool's paradise,' they hug a belief which has no foundation in truth, and which is too often dispelled by the loss of the majority of the apiary. If bees were imbued with the foreknowledge implied they would not swarm on the eve of weather in which they absolutely starve to death; they would not build such an excess of drone-comb as precludes their future prosperity through their becoming overburdened with useless consumers; they would not, when they swarm out, build their nest of combs in positions utterly untenable; maiden swarms would not issue often at times when the division of a colony means the destruction of the whole; they would not allow all the embryo queens raised after swarming to be destroyed before one of the first-born became fertile, thus risking in the person of one queen the source of prosperity of the whole colony; nor would they do many of the so-called 'stupid' things that render *management* necessary where fair profit is desired. Bees are but the creatures of circumstances, influenced daily, nay, hourly, by occurrences over which they have no control, and although in a state of nature they may exist in sufficient numbers to effect the fertilization of flowers and blossoms, their natural existence is very precarious, and perhaps wisely so, for if their increase and existence were certain, the world would soon be full of them, and man, instead of cultivating them, would be compelled to make war upon them for his own preservation.

Artificial Pollen.—We are now feeding our stocks with pea-flour; we began to-day, Feb. 23, and after a few minutes' coaxing they went at it right merrily. At first they did not seem to understand the skep full of shavings and the dust upon them, but having gone round with a packet and dusted the bees at most of the hives where they were busy, forcing them to carry in on their backs what ought to have been packed on their legs, the inhabitants of the hive became aware of the existence of it *somewhere*, and they were not long in seeking it, and by their mirthful humming joyfully proclaiming to their fellows that it could be had for fetching; and right earnestly they laboured to take it home to their hives, working till about a quarter to five o'clock. Sunday, the 17th ultimo, was our first real bee holiday, and they made merry indeed, visiting wallflowers and laurustinus by thousands, and filling the air with their pleasant music, but we did not think it advisable to give them much encouragement until to-day (23rd), when the pea-flour will stimulate sufficiently the strong stocks, and a bit of barley-sugar under the quilt of the weak ones, will, weather permitting, help the whole without great risk. We have been inquired of as to the position of the skep when filled with shavings, which, we may here say, should be inverted, that the bees may have the full area for working upon. Each skep should have three sticks stuck close round it, at equal distances from each other, and on the top of them an inverted milk-pan, or a sheet of glass, should be placed, the latter to be held in its place by a brick or clod of earth to prevent its being blown off.

Where this kind of arrangement is too much trouble, a flour-barrel laid on its side, its open end towards the south, will be a good vehicle for the administration of the pollen, a few shavings being thrown into it and the pollen

sprinkled thereupon; or, when small supplies are preferred, a few Australian meat-tins laid on their side, answer well, but require more attention in replenishing the pea-flour.

Arabis Alpinus.—Following the advice given some time ago by W. Carr, Esq., of Manchester, we have planted about a cartload of this early bee-plant, and it is just coming into flower, and promises abundance of bloom. We have also a lot of seedling plants two of which have been blooming out-of-doors since the middle of December, and may prove to be an early sort worth propagating.

Wallflowers.—Let us advise every bee-keeper to put one or two rows of wallflower seed into his kitchen garden, in lieu of the usual cabbage plants. They will not take up much room, will bear thinning out to stock the flower-garden for the next year, will bear a most useful lot of flowers for spring use, and in the meantime, will serve as an excellent protecting medium for first early peas or potatoes, which can be put on the sunny side of them.

Queen Wasps should now be sought out and destroyed. They may be found in all sorts of crannies, and on fine days may be caught flying by means of a small butterfly-net. Wasps are always a nuisance, and the destruction of their mothers at this season is a great preventive.

Entrances should be regulated according to the weather, but should be nearly closed on cold nights, or when hives are active much harm may be done. We have devised a new entrance-guard (slides) for cheap hives, which has the great advantage that everyone can make copies of it, and when fixed will remain in its place when the floor-board is removed. All the cheap hives sold by Abbott Brothers will, in future, be fitted with it, and anyone else may adopt it if they think fit. We give the permission, though we feel it is barely necessary, seeing how our other 'happy thoughts' have been appropriated.

Moving Stocks.—This may be done with comparative safety when the distance is half-a-mile, for at this time of year the bees do not fly far from their hives, and until the trees put forth their blossoms they have no inducements to do so; but later the area of flight will be much enlarged, and then it will be necessary to move them about three miles at once, or not more than a yard per day.

Sending out Swarms.—Having been inquired of for directions for sending out swarms when the time arrives, we venture to suggest that they be sent, if possible and convenient, in the hives in which they are to remain. We, some time since, arranged a swarm-box on a principle that was intended to give as little trouble as possible, but practically it was useless, for it seemed as if people would not understand it; and it gave rise to more correspondence than it was worth, besides being a great disappointment to those who could not see its virtues. In these days of cheap hives, and having the best models of the bar-frame principle, we think it would be far wiser to send out swarms in cheap make-shift hives, in which they can at least remain until they have formed their combs, than to send them in boxes from which they must be transferred at the risk of possible loss of, or injury to, queen or workers. A hive, such as we have in our mind's-eye, would with floor-board cost about five shillings. Its frames should be made to be interchangeable with others in use, and having been properly waxed, should be placed in the hive, and covered with perforated zinc, through which the bees could not creep, and a strip of wood nailed across each end and a few tacks on the sides would make all safe, and the hive would be ready when covered with a quilt to receive the swarm.

The swarm would be put into the hive in the usual way, and when quiet the entrance should be closed with perforated zinc, and the floor-board should be fastened to the bottom of the hive. The more quietly the latter is done the better it will be, and for safety and ease of removal we can suggest nothing better than two or three strips of tin to pass under the floor and up the sides of the hive, where two or three small screws will hold firmly, yet be easy of withdrawal when necessary. The hive and swarm are then ready to be sent to their destination, and should be properly labelled—'Live Bees per quickest route;' and the day and hour of sending should be written so that the receiver may see if there has been any unnecessary delay in their transit.

At the same time, it is quite worth while to notify by telegraph their despatch, so that the receiver may help to obtain them more quickly and prevent possible loss. While the labels are being prepared syrup should be given to the bees by the bottle, or by frequently sprinkling them, so that they may be well gorged and prepared for the journey. If a long journey is intended, a little bag of bee barley-sugar should be fixed above the zinc over the frames, and the same wetted with water just before starting, so that it might gradually deliquesce and become acceptable to the bees. If a *very* long journey be proposed, one (side) frame should be covered on both sides with perforated zinc, and the centre partly filled with the barley-sugar to last the journey and be of service afterwards. The latter method of packing would be equally good for short journeys and a great help to the bees on

arrival; but the generality of the public do not care to pay for more than the bare price of the swarm, although such aid would save them ten times the cost of it. On receiving the swarm and hive in the condition described, what a comfort it would be to the receiver! Instead of being obliged to rush about to prepare means for transferring the swarm to another receptacle, he would simply place the hive as it was received upon the stand prepared for it, cover the zinc closely with some quilting, leaving space for a full bottle of syrup, to be applied in the usual way, and an hour or two afterwards open the entrance and give the bees their liberty.

It will, of course, be necessary to see that the quilting is kept dry by proper roofing; but that, in fair bee-working weather, is all that need be done, save feeding if deemed necessary, until the hive is filled with comb, when the frames may be transferred if desired, or the hive may be supered and treated in the usual way.

If swarms are required in straw skeps, when hived, they will only require to be enclosed with cheese-cloth, labelled, and sent wrong way up, due regard being had to the directions for feeding by the way; and when received at their destination it will only be necessary to set them on their stand, put a feeding-bottle on the crown-hole in the usual way, and afterwards untie the cheese-cloth, to give the bees their liberty, and at night lift the hive and remove it (the cheese-cloth) entirely. We trust, however, that in these days of advanced bee-culture intending beginners will adopt the bar-frame hive, and so get their bees into domiciles in which they can be cultivated on principles in accordance with common sense. No farmer or fancier would make the breeding apartments of his pets so that he could not in a minute thoroughly inspect it. Why, then, should a bee-hive be so stupidly made? or even, though made, adopted?

PERSONAL.

We beg leave to tender to the many friends who have given us their sympathy on account of the fire which occurred near the end of January (24th), and absolved us from blame for the shortcomings and omissions which were thereby caused in the February number then ensuing, our very best thanks for their great kindness. In the hurry caused by the destruction of so much property and working gear, it was impossible for us to reply to them individually, and we trust this general explanation will be accepted in lieu of private personal thanks.

We are, however, again compelled to rely on the good feeling of our friends and subscribers for patient forbearance in respect of the present number, should anything be found amiss. It is exceedingly painful to feel it necessary to make public allusion to domestic affliction, but during the past week it has pleased God to break a link that bound us to this nether world; and however much we may, in all humility, recognise His chastening hand, we trust we may not be misjudged by fellow-mortals if we admit that the severance of the affection which bound brother to sister, though chastening, was grievous to bear; and we hope so disturbing an event will plead for us in extenuation of anything that otherwise might form a subject for complaining.

DON GIOTTO ULIVI.

Everyone who knows Rome remembers the magnificent Barberini Palace, on the Quirinal Hill, which was built from the ruins of the Colosseum. Many may have noticed the arms of the princely family, which are 'three bees.' That palace was built by Pope Urban VIII., one of the mightiest potentates of the middle ages. He began life as parish priest (*piovano*) of Campi, near Florence, but finding that he had no leisure for study, he resigned the living, and went to Rome, where eventually he became Pope, and then he did not forget Campi, but decreed that for the future there should be always three curates to help the priest, who would thus have time to study. The appointment of priest at Campi has been offered to Don Giotto Ulivi, the well-known Italian bee-keeper and author, whose parochial duties at Gricignano interfered with his studies, so that in future we may hear more during his leisure from this well-known authority in bee-keeping.

THE HUMANE SYSTEM—ITS ANTIQUITY.

Many well-informed persons, and others who have recently turned their attention to apiarian pursuits, are under the impression that the plan so eagerly advocated by advanced bee-keepers, of appropriating a portion, or even the whole of the honey, without destroying the honey-gatherers, is an invention of modern times and an entirely new discovery.

But although it was the custom of our forefathers, and is still the custom of bee-keepers in several parts of Great Britain, to consign their bees in autumn to the brimstone pit for the sake of their stores, this practice, if it ever prevailed in Europe generally, has long ago been banished from all Continental apiaries. It is only in the Himalayas—as mentioned in the interesting account of 'J. C.' in the *Agricultural Gazette* of April 2—or in such isolated places such as the higher parts of the Alps where the winter is severe, that killing off of stocks is resorted to, on the alleged ground that it is more profitable to put them to death and take their produce than to try and keep them alive by feeding, &c.

No doubt the form of hive generally used in this country has had great influence in perpetuating a system of bee-keeping which, in addition to being attended by frequent losses during the swarming period, celebrates its harvest home with cruelty and carnage.

The cheapness and convenience of the hive, and the ease with which it can be managed, have also made it popular, and contributed in outweighing humane considerations, and in recommending the continued use of the sulphur match.

But if the bee-keepers of Great Britain (save a few exceptions) have for ages past—

> 'In steam sulphureous wrapt the yellow dome,'

it is not because they were unacquainted with forms of

hives and modes of management which were as well calculated, as any at the present day, to prevent swarming, and give proprietors a share of the honey collected, without any necessity for murdering the labourers.

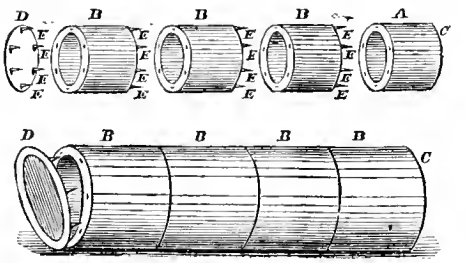
We have been fortunate in obtaining the figure and description of an ancient hive which had this grand object in view; and we give an account which we expect will prove as instructive as it is interesting. The description, with figure is to be found in two letters (one originally written in English, the other translated from the German) printed during the reign of the Protector Cromwell—more than 200 years ago—and of which copies are preserved in a volume of pamphlets in the British Museum.

The letter from the German professes to communicate 'a secret for the better ordering and preserving of bees practised beyond the seas,' and the writer thereof, after saying that in his way all occasion of swarming, and the breeding of new master bees or generals, is prevented, and that he could without killing any of his bees, share their honey, proceeds:

'My beehives did not stand upright after the usual manner, but lay upon two long poles or rails within my house, in a garret, close under the roof, where the bees could creep in and out under the tiles. The close end of the hive touched the tiles of the roof. In the upper end of each hive I did cut a hole for the bees to go in and out. The wind end of the hive commonly stands clapt down upon some plank, but in mine it was shut up, with a bottom made of straw pinned to it on every side with wooden skewers; and by the like means I could adjoin straw hoops of what breadth I pleased, and so lengthen any of my hives as often as need was, so that they never swarmed, though their number increased so much, that, by several additions, a hive became two or three yards long. The way of taking the honey from them was this. I unpinned the wide end of a hive, and by burning linen rags, I smoked up the bees thence to the close end of the hive, and then I might easily take away the prolongers, or additional hoops, one after another, till I thought the bees could not well spare any more honey.'

With the second letter in English there is a drawing (of which a tracing is given of the hive) or 'the description of my long beehives expressed in picture, wherein A is a common beehive, not standing as the usual manner is, but laid along upon one side. In the upper part of the hive I cut a round or four-cornered hole, through which the bees may pass in and out, here marked C. In the placing of the hive you may turn that hole downwards if you will; but I turn it always upward, that the bees, when they are laden, may rather go downward than upward.

'Besides, if I turn it not upwards, I cannot well set it close to any hole left for the bees' entrance under the tiles in the roof of a garret, which is a far surer way than, after the usual manner, to leave them in a garden, exposed to thieves, vermin, and distemper of weather.



'A, a common beehive; B, a prolonger, to lengthen or eke out the Hive withall; C, a hole cut in the upper end of the Hive, A; B, a bottom or dore to shut up the Hive, whether it be single, as A, or lengthened, as A B B; E, the wooden pins in B and D for the joyning of them to the ends of A or B.'

'Where the roof is inconvenient, I used to make a hole in the upright wall of a garret, and set the hives close up against the wall, with a hole in its head precisely answering to that hole in the wall. The open end I shut up with a bottom made of straw, as you see represented at D, which may be opened easily and shut close and firm by the help of those wooden pins here marked with E. When I perceive that my bees have near filled their hives I take off that shutter (D), and set on a prolonger like the hive, but that it hath no head such as here marked with B, and then shut up as before with that straw door, D. Thus I may add as many continuators as I please, shutting close up to one another, always closing the last with D. Whensoever I intend to take some honey from the bees I provide linen rags wherewith I make a smoke, and let it into the hive by pulling away the door, D, from whence the bees are driven by the smoke towards their small entrance, C, so that I may safely take away as many prolongers as I think good, and put a fresh one in the place, shutting it up with the door, D.'—*Agricultural Gazette.*

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY ANNUAL MEETING.

There is, as yet, no sign of 'dwindling' among us in this quarter. Members were never more numerous nor enthusiastic than at our annual meeting on 26th January. Indeed, we had to 'swarm' from one room of Lamb's Hotel to another and larger, and the three hours spent together were all too short to overtake the interesting programme.

The first hour was spent in receiving reports for last year, and re-organizing the Society for 1878. From the Report it appeared that nearly 200 bee-keepers are connected with the Society; that a fair balance of funds remains to commence the year with; that good work has been done by means of lectures, open demonstrations, correspondence, &c., and that the programme of last year is to be repeated, with improvements, of course. The leading officials, from the worthy president downwards, were unanimously re-elected, the few alterations being intended to meet the wants of districts not sufficiently represented.

The meeting then resolved itself into a conference, for the discussion of matters relating to bee-keeping. The following questions had been sent to the secretary, and were discussed and answered *seriatim*.

1. What is the best way of benefiting distant members, and so of creating more interest among them in the transactions of the Society?

Ans. The publication of a series of papers on practical bee-keeping was proposed, but meanwhile departed from on the ground of expense. The same inserted in local newspapers, besides being difficult to attain, would throw open the benefits of membership to all and sundry, and tend to lessen rather than increase the strength of the Society. More frequent lectures and local meetings are scarcely possible so long as the work chiefly falls on a few unpaid officials, whose time is not at their own disposal. On the whole, it was agreed that the facilities already provided by the Society for affording advice and information, if taken advantage of as they ought, should be sufficient to ensure the interest of all who are really enthusiastic.

2. Is there no danger of disturbing the economy of the hive by filling it entirely with worker-comb foundation?

Ans. Such a hive, not being in a normal state, would not thrive like one that is. A few inches of drone-comb will prevent the queen in great measure from seeking to breed in the supers, and the bees from tearing down the worker-comb and replacing it with drone-comb, as they sometimes do.

3. How are queens fertilised in confinement?

Ans. Various methods have been attempted, but none

have given results that form a reliable plan. It is agreed, however, that the subject is a proper one for experiment.

4. How can we prevent bees from coming out and getting chilled without irritating them?

Ans. Diseased bees always try to get out of the hive, but healthy stocks may be kept in for considerable periods by darkening the entrance without closing it.

5. When is the best time to Italianize an apiary, spring or autumn?

Ans. Neither. The best time is during the swarming season; queens are *cheapest* in autumn, but much more valuable at swarming time: then alone can the progeny of a single queen be placed at the head of every colony.

6. In the *B. B. J.* for May, under the title 'Honey Extractor,' it is recommended that the entrance to the upper story be kept open; would not this cause a draught in the lower hive?

Ans. Not during the extracting season. It rather provides for the necessary ventilation.

7. When should stimulative feeding be commenced, in spring?

Ans. Prepare stocks well for wintering, and they require no stimulating till plenty of natural pollen is coming in.

8. Can too much artificial pollen be given to bees in the spring?

Ans. Give as much as they will take. (One member was entirely opposed to artificial pollen as being unnecessary.)

9. Will transferring bees from straw skeps to bar-frame hives in spring retard swarming?

Ans. Certainly.

10. How soon should a super be put on a new swarm?

Ans. When the hive is full of comb.

11. When should supers be put on hives that we do not want to swarm?

Ans. When the hive is full of bees and honey coming in.

12. What is the best means to prevent swarming?

Ans. Introduce a young queen. Give plenty of super room and plenty of doorway, and keep the hive shaded.

13. What is the best way to get the largest amount of surplus honey?

Ans. By spreading the brood, and the use of the extractor; secure that the body of the hive shall be filled with brood or eggs during the rush of honey, and treat as in *Ans.* 12.

14. What is the best and most effectual way of draining honey from the comb?

Ans. By the honey-extractor.

15. What is the best mode of melting combs into wax?

Ans. Soften in warm water, pack in a cheese-cloth bag, place this at the bottom of an iron pot on a tin plate, and hold it down with a flat stone or piece of iron; pour plenty of water into the pot, and boil, pressing the bag down now and then with a stick; set the pot aside till cold, and then remove the cake of wax from the top. In this way there are no dishes dirtied or wax wasted.

16. Under what conditions should queens be reared, so as to have a reasonable prospect of improving stock?

Ans. In spring, select two stocks, one containing your best queen, and the other known to produce a good class of drones. These stocks must be in no way related. Insert a comb containing drone-cells into the centre of the latter, and stimulate both by constant feeding. When the drones begin to hatch in the one hive, remove the queen from the other and allow the bees to rear royal cells. When these are near hatching, dispose of them among stocks or nuclei, and the probability is, the princesses will mate with the early hatched drones.

The necessity of removing your best queen may be avoided by stimulating a less valuable stock, removing its queen as before, cutting out *all* royal cells a week after, and introducing a comb containing *eggs only*, laid by your best queen. You will now get all your royal cells built on this one comb: they will contain queens raised as such *from the egg*, and that in a strong stock; and these are conditions necessary for the best success.

Various appliances were exhibited to the meeting, including a block for rapidly making super sections; Root's cage for sending queens by post and introducing them without handling; and various styles of honey-boxes used in America. One of the latter, a single-comb section, was greatly admired for its neatness and the excellent finish of the comb. Extracts were read from Baron Berlepsch and Professor Cook, of America, and a drawing by the latter, showing the greater length of the tongue of a Ligurian bee, was exhibited.

All the members agreed that there was more need than ever of such a society, and that mainly through its advantages they had, in nearly every case, been enabled to bring their stocks through the past disastrous season, while others had lost nearly all: so we enter hopefully on the campaign of 1878.—WILLIAM RAITT, Secretary, *Liff by Dundee, January 29th*, 1878.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The second annual meeting of this Association was held on Tuesday, 19th February, 1878, at the Royal Public Rooms, Exeter, at 6.30 p.m., and was well attended. Previous to the meeting a tea was given, at which about seventy were present. The tea-tables were presided over by Mrs. Ellis, Miss Bluett, Mrs. Griffin, and Miss Eales. The Rev. P. Williams, of Rewe, presided at the meeting.

The minutes of the previous meeting having been read and confirmed, on the motion of Mr. Fox, seconded by Mr. Browning, the following report was unanimously adopted:—

'Looking back at the past year very little has been done by this Association, owing chiefly to the exceptionally bad honey season which has been general throughout the United Kingdom—such a wretched season has not been known for many years. All may be attributed to the very wet and cold summer, which prevented the honey from secreting in the flowers. A few persons were fortunate enough to obtain fine supers, but in most cases the poor bees were not only prevented from filling supers, but failed to store sufficient food in their hives for their winter supply. Bee-keepers on the let-alone system will undoubtedly lose many of their stocks this winter. In the last autumn many skeps were weighed and were found on an average to contain only a few pounds of honey, although there were plenty of bees. And with regret your committee were therefore, under the circumstances, compelled to relinquish the idea of holding a show last year. The Royal Western Horticultural Society were very liberal and would have offered us every assistance for holding a bee exhibition in connexion with their show at Plymouth last August. The Devon and Exeter Horticultural Society also would have been pleased for us to have held an exhibition in conjunction with their autumn show. The British Bee-keepers' Association generously offered two silver and three bronze medals to be competed for by members of both Associations; but as no exhibition was held, the committee were reluctantly obliged to decline their kindness. In May last a lecture on bees was kindly delivered by Mr. S. B. Fox to a crowded audience at the old school-rooms, Alphington; and the proceeds, after deducting expenses, were divided between the Alphington Society of Ringers (who kindly assisted on the occasion) and our Society, 10*s.* 5*d.* being the part for this Association. With regard to the arrangements for discount to members on bee furniture, Captain P. Martin states that he is willing to supply his hives at ten per cent below advertised prices. But

Messrs. Abbott Brothers beg to say that they find it impossible to allow discount on their goods, which are catalogued at lowest cash prices: and Mr. J. Lee also begs to state that in small orders he cannot allow discount. It is with regret we have to state the loss of our late treasurer, Mr. C. E. Fletcher, he having left this part of the country. Last year the members numbered fifty-one, including three cottagers. It is hoped those interested in the cause will use their influence to induce others to join, and that the coming season may be a favourable one, and that the committee may be in a position to hold an exhibition during the year.

The treasurer's statement of accounts was also adopted. There was a balance in hand of 9*l.* 9*s.* 5*d.*, and a balance of subscriptions in arrear amounting to 3*l.* The Chairman said he had great pleasure in stating that they had been fortunate enough to induce Mr. W. H. Ellis to accept the position of President for the ensuing year. The past season had been backward and untoward, and seemed to paralyse the efforts of the Association. There were, however, some indications of a better time coming for their culture, and he had very little doubt that, under the presidency of Mr. Ellis, the Society would prosper. He proposed the election of Mr. Ellis as President. Mr. Wm. N. Griffin (Hon. Sec.) seconded the motion, which was carried with acclamation. Mr. Ellis returned thanks for the compliment paid him, and said he would do his best to advance the interests of the Association, and proposed that the following gentlemen be elected on the committee:—Rev. P. Williams, Rev. S. Childs Clarke, Mr. S. Bevan Fox, Mr. J. B. Browning, and Major-General E. Saunders; Mr. R. J. Gray was elected Hon. Treasurer, and Mr. Wm. N. Griffin was unanimously re-elected Honorary Secretary.

The Chairman, before resigning his seat to the newly-elected President, addressed the meeting on the capabilities of Devonshire for profitable bee-keeping. He said he believed there were few counties in England so well calculated by nature for the accumulation of large stores of honey in ordinary seasons as the beautiful county of Devon. The moist warmth of the climate in the lower parts of the county was favourable to the secretion of honey in flowers, whilst the luxuriance of the vegetation which was everywhere so remarkable caused trees and shrubs to mature more rapidly than was the case in other parts of England. It was from these sources that the early stores of honey were procured. There were also many parts of the higher grounds in the county which produced heather, and that was useful for the late crop of honey. Devonshire was, however, behind many counties in the production of honey, according to its acreage, simply because people were not aware of the hidden stores of wealth that lay before them, and would not take the trouble to collect them; or because they did not know how to manage bees. He suggested the publication of a pamphlet setting forth the capabilities of the county for the production of honey, and for stimulating its production in places where the supply had hitherto been deficient. They could also provide depôts in the central market towns where they might arrange for a market for the honey produced, upon such terms as they had arranged in Exeter, and upon condition that the honey so offered for sale should have been obtained *bona fide* upon the system of depriving and not destroying the bees. He also recommended cheap hives for the use of the labouring classes, which would enable them to keep bees and not destroy them. Then at the annual show they could give a handsome prize for the largest quantity of honey produced from a single hive. He also recommended the Association to make known their name and objects by means of advertisements. If they could once get people to believe that they were neglecting evident means of acquiring money by not keeping bees, he thought the other difficulties might be expected to vanish.

Mr. S. B. Fox also read an interesting paper on the subject of 'Foul Brood'—a disease, he said, which had proved very destructive in many apiaries. In the year 1863 the late Mr. Woodbury lost nearly his entire apiary from the disease, and two or three years since he himself, out of twenty-four hives, lost twenty from the same cause. The disease arose from the death of the brood in the cells, and so infectious was it that even bees conveying honey from one hive to another took the disease. He suggested as a means of preventing the disease the burning out of the hives with hot water and carbonic acid.

Votes of thanks were heartily accorded to the Chairman and Mr. Fox for their interesting papers: and the proceedings then assumed an harmonious character, some gentlemen of the Cathedral choir giving the following excellent programme of song- and glees, Mr. Ferris Tozer accompanying on the pianoforte:—Glee, 'Three Chafers;' song, 'Tar's Farewell;' glee, 'Lovely Night;' song, 'Sweethearts;' glee, 'Soldier's Love;' song, 'Madoline;' glee, 'On a Bank;' song, 'My Darlings Three;' glee, 'Banish, O Maiden:' song comic, 'Jones's Musical Party;' song, 'Jack's Yarn:' glee, 'The Dance.'

The vocalists were Messrs. Stilliard, Pallett, J. Tozer, and Dison. Mr. J. B. Browning arranged this pleasant part of the proceedings; and it is needless to say it was a complete success, and a vote of thanks was carried by acclamation to the gentlemen who had so kindly given their services, and added so much to the attractions of the evening.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

CENTRAL ASSOCIATION OF BRITISH BEE-KEEPERS.

The shortcomings of the British Bee-keepers' Association were so apparent to all the members who took interest enough in their proceedings to attend the general meetings; and they have likewise been made more apparent by the collapse of the Association, that any new Association must take its warning by the experience of the past.

If the trade element is allowed to preponderate in the new Association by whatsoever name it may be called, or wherever may be its locality, trade jealousies will soon creep in, and then farewell to all smooth working of the Society; at the same time, the true interest of the manufacturers of hives and bee-furniture must not be overlooked. The first mistake made by the British Bee-keepers' Association took place at the meeting of the Association on the 10th September, 1874, when a long list of names was retained as vice-presidents, who it was then known would take no active interest in the affairs of the Association; and the effort to change those who were willing to take such active part from vice-presidents to committee-men was defeated, the result being an array of names on paper, who, when they had started the Association, cared no more about it.

A suggestion was made at that meeting that all parties should be considered as out of office, and that unless they would consent to continue on being asked, they were to be struck off the list. But this was not agreed to, and many outsiders who had come to the front after the first start of the Society, and who had no possible means of joining the Society earlier, were prevented from being added to the list, as it was already deemed large enough.

I shall be glad to become a member of the new Association, either as a life member or otherwise; and further, I shall not shirk any share in the management wherever the locale of the Society may be established; and I am sure the numerous bee friends with whom I have had the pleasure to associate, to meet, and to communicate with in various bee labours during the past three years, will know that in all matters relating to bee exhibitions I am not a drone.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

P.S.—If a meeting should be thought desirable to be held, and a sufficient number of workers could be got together, I would gladly put in an appearance.

CENTRAL APIARIAN ASSOCIATION.

I think you are taking a decidedly right course in offering your services, in the kind manner you have done, towards establishing 'The Central Association of British Bee-Keepers.' An association of this kind requires at its head some one like yourself, who—being an eminently practical apiarian, having the real advancement and extension of bee-keeping at heart, and having the editorship of that most valuable monthly paper the *British Bee Journal*, which should become the organ of the Association—are better qualified than any other person to take this position. Having such an excellent practical work on bee-culture, from which many of us have learnt most of what we know of that interesting occupation, let us recognise it at once as 'our *Journal*,' and not divide our interest by establishing another, as has been proposed; and let us all unite to make the proposed Association and its recognised organ a success. I have very great pleasure in asking you to enter my name as a life member of the Association. I consider that one reason of the non-success of the moribund institution is that its professions, with reference to the advancement of bee-keeping amongst cottagers, have never been fulfilled. Here, then, is a useful work for the new institution. I should like to suggest that the proposed Rule III. should be amended as follows:—after the words 'to be certified by the clergy of their parishes,' add 'by a minister of any denomination, or by a life member.'

Wishing you every success, and the Association a bright and useful future.—James Hamlyn, *Bossell Park, Buckfastleigh, Devon.*

FOREIGNERS AT SHOWS.

I cannot help thinking that there is much in the correspondence of 'J. W. N.' and others, published in the *British Bee Journal* of late under the head of 'Foreigners at Shows,' which if observed will tend greatly to discourage our leading exhibitors of hives, honey, &c., and so considerably retard the progress of local Bee Associations. What interest, allow me to ask, would any local Association have without its exhibition, and what would such local exhibition be without the aid of the so-called foreigner? I can answer for the Lincolnshire. I feel greatly indebted to the many gentlemen (and especially those at a distance) who on the occasion of our exhibitions so kindly responded to my appeal for help in the way of exhibits. Such help, I assure them, was very highly valued, and did immense good to the cause. I would add, that so long as I am connected with the Lincolnshire I will continue to do my best to secure for the gentlemen so ungraciously spoken of a liberal schedule and a hearty welcome to its exhibitions and honey fairs.—R. R. Godfrey, *Treasurer, Lincolnshire Bee-Keepers' Association, Grantham, Feb. 14th,* 1878.

FOREIGNERS AT SHOWS.

I think it absurd for folks to talk and rail against exhibitors after they have been asked to help them. Beside, what can any little local show do of itself? What, for instance, could a local show do in the way of hives without inviting hive-makers? And liberal open prizes should be given. It is all right to have a reserve for home, but if you don't enlighten home birds with the new ideas, bee-keeping will make but slow progress. Nothing, I am convinced, will do more towards advancing the cause than exhibitions, and these exhibitions must be made as attractive as possible; and you must invite all who will to help, and let them know there is something for their trouble and expense if they are fortunate enough to stand at the top or near there. You will see I take the objection as intended for exhibitors of hives as well as honey—it means both; and I should like to see the petty, mean idea nipped in the bud.—Hon. Sec.

SETTLING ACCOUNTS.

As Mr. Godfrey appears to have taken my P.S. as applying to himself, I shall be glad to say a word or two in self-defence, and likewise bring it before the readers of this *Journal*, that it would be well in future shows to insure that the prize money would be ready to be paid the same day as the Shows are held. In the first place, I paid 9*s.* 6*d.* entrance-fees before the Grantham Show took place; then there was sending honey, and going by rail and returning, which took a lot of money too; then there was loss of time; but Mr. Godfrey appears to make it out that I had nothing else to do with the money but just go and bank it. I suppose, too, that stocks from which I had slung all their honey would require something to live on till May or June. Mr. Godfrey makes it appear that I was the only dissatisfied exhibitor; when I know positively there were two others, as they both wrote to me and said they had applied to Mr. Godfrey about accounts being settled.

As there was over three-quarters of a ton of

honey sold at the Grantham Show, which at only a shilling a pound on 1680 pounds would amount to 7*l*. I think the Association could well have afforded to have paid some one to have settled up sooner. I had to pay myself commission over 12*s*., of which I sold myself more than three parts of the honey. I know that at the Sherborne and Dorchester Shows the prize money was paid the same day to those who were there; and I received my prize money for Extractor in a few days after. There was a Flower Show at Kenilworth Castle, and honey and wax shown too, of which I was Judge, and they paid their prize money the same day. If some can do it, why not all? It is so much easier done when everything is fresh in the memory. I cannot see how Mr. Norton can reconcile what he says on the subject of 'Foreigners at the Local Shows' with what he wrote to me asking me to send some honey to their Shows. After sending him word I could not, I got a post-card from him again, which I will quote, and enclose it to the Editor, that he may see it. It runs thus:—

'Am very sorry you cannot send us any of your honey, as you were so successful at Alexandra Palace last year. Should have liked to show the folks in this neighbourhood what a cottager can do. I'll send you another entry form if you alter your mind and drop me a post-card. Yours, &c. C. E. Norton, *Shaftesbury*.'

I think Mr. Norton is labouring under a mistake if he thinks any cottager would go 150 or 200 miles for the sake of being allowed to try to win one or two open prizes.—A. W. B., *Leamington*.

PRIZE SCHEDULES.

In reference to your remarks on our Prize Schedule for 1878, and with a view to elicit discussion on Prize Schedules in general, allow me to remark that we never have considered ours as a true index of the existing state of apiculture among us. The fact is, that in a new locality a Prize Schedule must, if it is to be popular, be moulded by considerations both past, present, and future. The *past* will be reflected in those classes framed for the encouragement of those who, while knowing nothing of modern systems, have yet associated themselves with us with a desire to learn. A single exhibition, in which the best results under the old system are a miserable failure compared with those under the new, is generally sufficient for the purpose. To this class belonged our original offers for skeps and (but tell it not in the West) storifyers. They have served their turn, and now we can afford to give them the go-by. The best skep of honey exhibited at our show, weighing 95 lbs. nett, was admired by nobody, and was with difficulty sold at 6*d*. per lb., while the produce in supers alone from a single bar-frame hive sold easily for nearly 8*l*. Then the skeps shown in the hive classes were too evidently got up merely for the prize; and the prices affixed were, as compared with cottager's bar-frame hives, prohibitory. They are gone. The only storifyer shown was got up for the very purpose of catching a prize that had gone a-begging, and the maker never made but two: so far as our Society is concerned their doom is sealed, and the best of it is there is not a single mourner. In fact, our members, mostly knowing nothing better than a straw skep, and no system but that of fire and brimstone, but having some *brains* for all that, on the 'revival' taking place, boldly stepped right over the storifyer and adopted the bar-frame hive—the perfection of a system to which the 'far-famed' Stewarton is but a half-way halt.

Present effect accounts for several classes, such as big supers, fancy designs in honey-comb, and observatory hives. They are chiefly meant to be attractions for the show. These we can scarcely as yet do away with, dependent as we are on the public for the success of our exhibitions. But it is evident these can take no place in a system worked for profit. Leaving all these out of account, we still have, I venture to say, classes enough to meet the views of the most advanced, and to hold out promise of *future* improvement. Honeycomb, in small, neat packages, will certainly be the order of the day. Parties using sectional supers alone might take all the prizes in Nos. 1, 2, 5, 6, and 10, amounting to 13*l*. 15*s*. The hive classes speak for themselves. Except the observatory class, they all have a practical, progressive look. Our former restriction as to prices of hives has served a useful purpose; it has developed a really good hive at a moderate price, and being made by several local makers costs little for carriage. The restriction is now removed, not because we are dissatisfied with a 20*s*. hive, but because we want now to see—it may be alongside of these 20*s*. hives—in what supreme excellence consists. For myself, I candidly believe there is no *necessity* for a hive costing more than 20*s*. Most of my own only cost me to buy 3*s*. 6*d*. each, and the best results I ever had were from a hive not nearly so well made as these. But we shall see.—William Raitt, *Liff by Dundee*.

THE STEWARTON HIVE.

Your correspondent 'J. W. N.' thinks that the results which I obtained by the use of the Stewarton Hive are not a fair test for ordinary bee-keepers. At any rate, they are a proof of what may be attained by using a really good hive, and carrying out the instructions of those who have by their success demonstrated the excellence of their system.

Keeping bees merely as an amusement, and never selling either wax or honey, I am not prejudiced in favour of any particular hive, and do not care to retain a large stock of bees. Four—or, at most, five—hives are all that I keep through the winter; so that I have only a small number of stocks from which to select boxes for exhibition. I have had fair success with Woodbury frame-hives, having taken about 70lbs. from one of them in a season; but, as far as my experience enables me to judge, the Stewarton system yields a larger quantity, and better quality of honey, than any other mode of management. My attention was first directed to this hive by sundry articles emanating from the pen of 'A Renfrewshire Bee-keeper,' who, if I remember rightly, obtained a harvest of about 200lbs. from one set of boxes. To this gentleman I am

deeply indebted; and by carrying out the very full and careful instructions which he has communicated by means of this *Journal*, I have achieved a success beyond my most sanguine expectations.

In 1874 I obtained my first Stewarton hive, and stocked it with an artificial swarm. The following summer, 1875, was the worst season I have experienced for more than twenty years, and this hive was the only one which gave me any harvest, about 27 lbs. of pure virgin honey.

In 1876 this was the only hive devoted exclusively to honey-gathering, and I obtained from it 144lbs. of splendid virgin super honeycomb, and 6lbs. of slung honey, which were removed from the brood combs merely to give the queen empty cells in which to deposit eggs. The season was an excellent one, and a *swarm* in a set of Stewarton boxes (a single artificial swarm) gave me 75lbs. of pure super honeycomb; and a Woodbury hive, from which a swarm had been taken with all the adult bees early in the summer, subsequently filled a fine super with 55lbs. of virgin honeycomb. Last summer (1877) was a bad one in our district; but this same original hive again came to the front with 63lbs. of pure virgin honeycomb. Only two hives were devoted to honey-gathering! My other hives were all utilized for making swarms. While I have thus obtained large harvests of honey for many successive seasons, I find that ordinary bee-keepers in this neighbourhood think they have done well if they have on an average secured 10lbs. from each hive. From what has been said above, I do not wish bee-keepers to suppose that they will necessarily obtain large harvests of honey by simply hiving bees into Stewarton boxes. In bee-keeping, as in other pursuits, excellence is only to be attained by experience and careful attention. The wants and requirements of the bees must be carefully anticipated: but, at the same time, useless and unnecessary interference must be avoided.—J. E. Briscoe, *Albrighton, Wolverhampton, 7th February.*

PASTURAGE FOR BEES.—No. VII.

(*Continued from p.* 168.)

Linden or Lime (*Tilia*). There is no tree of more interest to bee-keepers than the linden. How we rejoice at the unfolding of its leaves and the appearance of the buds! With what interest we watch the swelling of the buds and then the opening of the first flowers! Then comes the golden harvest for our favourites. The happy buzzing of the bees among the leaves grows stronger and stronger from day to day, till at last when the blossoms send forth their exhalations far and wide, we with rapture hear their humming, sounding like the noise of a distant waterfall.

But not alone when in blossom does this noble tree yield food for the bees; but for three or four weeks before there distils from the leaves a sweet juice, which the industrious workers quickly transfer to the hives.

The following are the principal species of European linden, in the order in which they bloom.

1. *Tilia Parvifolia Hyslæa.*—This linden-tree flowers about the middle of June, and is the first to receive the attention of the bees. The leaves are large.

2. *Tilia Parvifolia* has leaves nearly as large as the foregoing species, but comes into bloom from six to eight days later, and is much visited by the bees.

3. *Tilia Europæa* I described on page 167. It has small leaves and blooms from three to six days later than the second species, and its flowers appear in large clusters (see engraving, page 167). This is the most cherished of all the species of linden, and the rush of bees for its sweet nourishment is wonderful, and the sight does the heart of the bee-master good. All bee-keepers and lovers of their country should plant some of these noble and beautiful trees, the more the better. My father planted a great number of these trees nearly seventy years since; and although it is more than thirty years since he passed away, they remain as monuments of his good and noble nature, and rear their heads up proudly from forty to sixty feet in height.

4. *Tilia Occidentalis* has small dark leaves, and often covered all over with blossoms, which are, however, not visited so eagerly as the blossoms of the *Europæa*. It blooms some eight to ten days later than the *Europæa*. A somewhat less visited variety, called Winter linden, blossoms from three to six days later.

5. *Tilia Grandiflora* has large leaves, and is not so full of blossoms as the other species.

6. *Tilia Argentea* (Silver linden), with short-stalked leaves, with a silvery white underservice, with thick-stemmed fleshy flowers, which open some six days later than the winter linden, but are much visited by the bees.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

IMPROVEMENT IN BAR-FRAMES.

It must have struck many as a very singular fact, that out of the numerous hive-makers who have put before the bee-keeping public new hives, that none of them have made any improvement upon the bar-frames that was originally introduced with the first hive brought out by the late Mr. Woodbury! Now, it is well known that on taking out a frame for manipulation, or upon replacing the same into the hive, a loss of bee life is occasioned by being crushed between the side-bars and the rails or rebates upon which the bar-frames rest. It appears to me, that if the side-bars of the frame were chamfered on both edges, it will at once be seen that only at one point could a bee be brought to grief; and so reduces the chances of death to a minimum. I have much pleasure in throwing out this hint for others to improve upon; but until something of this kind is done to prevent the loss of bee-life, no hive, in my opinion, will be at all 'nigh perfection.' All my bees, I am happy to say, are doing remarkably well. I beg to sympathize with you greatly at the loss you have sustained through the late fire.—Chas. H. Edwards, *February*, 1878.

[A sketch accompanied this communication, showing that the improvement consists in making the ends of the

frames of the shape of an open V, so that their lowest points should rest on the zinc runner, and offer the least possible opportunity for crushing bees when returning them to the hive. We would remind our esteemed correspondent that his idea was forestalled many years since by Mr. Woodbury, who drove pins into the ends of the frames, which offered very little crushing surface, but neither is of any practical use as, hanging like a pendulum, a frame would be very unsteady. To prevent unsteadiness, we adopted the wide-ended frames, and really believed they were improvements on the Woodbury bar.—Ed.]

BEE FLOWERS.

Will you or any of your numerous readers tell me how or where I can obtain seeds of the *Cacalia saurcolens* (the Alpine coltsfoot)? I shall also be glad to learn if this flower is an annual or perennial, and to what height it grows. I shall feel extremely obliged to anyone who will be kind enough to send me the information I now seek to my address.—Chas. H. Edwards, 29 *Oakley Square, N.W.*

ARE BEES PROFITABLE?

The above question is frequently asked, and we can only reply, 'No and yes.' If bee-keepers insist on managing bees as did their ancestors, they will find it rather a discouraging task: on the other hand, if they will manage them under the new system of bee-keeping, with a little knowledge of their habits and requirements, the result must be one of profit and pleasure. Remember, the very first element in successful bee-culture is the intimate knowledge of the bee, and this cannot be acquired in a day, although very easily learned when the novice is ready and willing to apply himself to the study and nature of their wants and habits. It cannot be acquired in a day from books. Every step that is taken through the labyrinthine mysteries of the bee-hive only fits and qualifies them for a success in the enterprise. We would recommend to new beginners, if profit be their object, to begin with only a few swarms, and they in a good, simple, moveable frame-hive. This will enable them to often inspect the interior of the hive, and every inspection will prove a valuable lesson, and will enable them to more wisely enlarge upon their investment—bearing in mind that strong swarms are the ones that pay, they should ever labour to keep all in that condition. The new beginner, of course, has in his mind in what special product he will receive his profit—bees or honey. He must consider that one will be at the expense of the other. If he proposes a large yield of honey per swarm, he should not expect to increase his stock so fast as if their stores are left untouched, and given to them in artificial swarming: as every comb, whether containing brood or honey, adds greatly to the strength of the swarm. What the apiarian is labouring for is the greatest amount of dollars and cents that can be procured from a single swarm. Then the question is, 'Bees or honey?' If bees exclusively, they will be obtained at the expense of surplus honey: and by artificial swarming they can, in a good honey season, be made to increase very rapidly, but bee-keepers should bear in mind to always keep their swarms strong with bees and honey. 'But,' says one, 'we want honey;' then you must proceed in a different way. Honey being the object, you will need all the bees that your hive will produce, to gather the surplus honey. Besides, your hive must possess sufficient capacity to engage all the bees in labour. Room must be given for a strong and constantly increasing force of workers, or they will be compelled to either leave for the woods or to hang idly outside of their hive, simply for the want of room. The new beginner should remember that the greatest number of bees that they can keep at work in the boxes, the larger amount of honey he will receive for his trouble. A colony, or hive of bees that is strong in the spring, with honey, brood, and bees, will be very apt to give their owner a large surplus of honey in almost any ordinary season, and not an unfrequent thing for some swarms to give a hundred pounds of nice comb honey. For a new beginner to produce such results, he must, of course, study the best way of applying boxes, that his bees may have the greatest facility for their work. We manage them in this way: Put on the boxes as soon as the bees begin to work in the spring. When they get fairly at work in the boxes, building comb, raise up the boxes and place an empty set underneath them. This will draw up nearly all the surplus bees, uniting their work with boxes and hive, thus giving the queen full control of the brood-nest, which, if not given, the workers would too much occupy for honey, thereby lessening the strength of the swarm, or causing them to swarm out. We keep adding boxes as above described, until we often have from four to six sets on at a time. Adding boxes in this way, the surplus honey is nearly all stored above, and the queen, with a sufficient force, will manage matters below. Following this plan, a large force of workers is continually being added, which is the life and prosperity of the swarm, and causes the profit of the bee-keeper. We have had over one hundred pounds of choice honey, in boxes made this season, from young swarms, besides their casting a swarm.

In the question of profitable bee-culture, there is involved a question of resources. The floral treasures of the country must be taken into consideration. There are portions of our country in which bee-keeping would not prove so successful, though very little in which a few swarms may not be kept for the benefit of the family. We have hardly made a commencement upon the honey capital of the country, and the large amount that is yearly gathered, is but a drop saved from what yearly goes to waste. Where honey-plants are not of natural growth, we have many kinds that are soon brought to yield a large amount of honey. All that is required is a little trouble in sowing and setting out trees, that will soon pay largely for the honey alone. The linden-tree, called by many basswood, when planted out will soon bloom. It is a tree that will grow in almost any soil, and will yield largely honey of the finest quality. To the new beginner, commence on a small scale: study the nature and habits of the bee, and with interest and energy you will be likely to succeed every time. —A. F. Moon, *Rome, Ga.* (*Southern Poultry Journal*).

THE WOODBURY HIVE.

In your article on p. 163, on the death of that clever and experienced apiarian, the Baron von Berlepsch, to whose labour of love for bees all apiarians are much indebted, as he taught them by his experiments and writings, assisted by his excellent wife, the Baroness Lina von Berlepsch, how to manage their bees successfully.

You say, 'At the time when *Woodbury* invented the moveable frame-hive, Berlepsch was making a similar discovery. But his side-opening hive (which is yet the most used in Germany, and which had the honour of being selected as the standard by the Italian bee-keepers) is not as easily managed as that of *Woodbury*.'

Now I am not aware that Mr. Woodbury ever invented any hive, nor do I know that he was a bee-keeper or writer on bees at the time the modern bar-frame hive was invented by the Rev. L. L. Langstroth in 1851-2, that quite revolutionised bee-keeping, and brought it to such great perfection that it has now become of national importance. At the same time the Baron von Berlepsch and the Rev. John Dzierzon invented the German bar-frame hive, their discoveries being quite unknown to each other at the time.

Of course Huber was the inventor of the first bar-frame hive, about 1796, but his frames were one inch thick, and formed the top, back, and front of the hive, and the frames opened like the leaves of a book. In 1834 Major Munn was the first to put bar-frames into a box or case, the same as the modern bar-frame hives.

All good bar-frame hives, including Woodbury's and Carr's Improved Humane Standard Bar-Frame Hives in England, are all combinations of the celebrated Langstroth bar-frame hive. See *British Bee Journal*, March, 1874, p. 177. So honour to whom honour is due.—WILLIAM CARR, *Newton Heath Apiary, near Manchester, January*, 1878.

LONGINGS FROM NEW ZEALAND.

The enclosed slip will indicate my reason for writing to you. I have long had a desire to obtain *practical* information with drawings of hives, &c., to enable me to instruct settlers how to keep bees to advantage, but I have never yet found any work that is sufficiently explanatory or clear. The slip, cut from a newspaper, says:—

We hear that endeavours are being made to establish in New Zealand bee-farms on the same system, though of course on a much smaller scale, as those in England. Mr. C. N. Abbott, of Southall, Middlesex, acknowledged to be one of the first bee-masters in England, besides being the inventor of the 'Standard Bar Frame Hive,' 'The Little Wonder Honey Extractor,' and a variety of other useful and needful articles used in apiculture, also editor and proprietor of the *British Bee Journal*, has reduced bee-farming to such a point of success that many a man actually makes a very good income by devoting himself to this business, and this alone. Under his system the bees are never smothered as used to be the case in order to procure the honey, so of course the stocks go on increasing, an undoubted advantage, especially where the bees have to be imported. The great favourites in England at the present time are the imported Ligurian or Italian bees, which are much better honey-gatherers and larger breeders than the old native bees, but the few experiments yet made in New Zealand have not proved great successes. A gentleman lately arrived from England, who gleaned his knowledge of apiaries whilst studying with Mr. Abbott, is confident that they can be made a pecuniary success, and considers the climate of New Zealand admirably adapted to them.

The writer continues:—I believe the attempt to import Ligurian bees into this colony has hitherto been a failure, but we have already some very good honey-making bees.—T. F. W. T., *Auckland, New Zealand*.

THE JAVA BEE.

As the question of the importation of the *Apis dorsata* is attracting considerable attention among English-American bee-keepers, I send you a few lines on the subject.

In 1875 appeared in the Eichstädt *Bienenzeitung* an article by M. Cori, reporting information he had just received from a Java official respecting a new and very valuable bee, said to inhabit that island.

This report has gone the round of the various bee-papers, and has till now been almost the only source of information on the subject. The account is, however, in some measure, confirmed by Mr. Wallace in his report on the Borneo bee (see extract from 'Malay Archipelago, 1869,' in *A. B. J.*)

My friend Mr. Fiorini, of Mouselice, Italy, and myself, are greatly interested in the introduction of new races of bees, and we have taken steps to import this variety. Dr. Dzierzon, my friend Mr. Cori, and other celebrated apiarists, have assisted us to the best of their ability, and the Italian Government has also granted its valuable support. One consignment has fallen through, but a second may be more successful.

Mr. Cori, however, wishes it to be known that a friend of his, a German pastor, who resided on the island of Java, and was thoroughly conversant with advanced bee-keeping, made during the course of several years constant efforts to domesticate the *Apis dorsata*, but all were without effect, as, owing to their roving disposition, the bees would not keep to their hive for more than a few weeks. This gentleman also asserts that these bees are very lazy, and the little honey collected is of a thin, watery consistency, and is very liable to ferment.

Mr. Cori wishes, therefore, to withdraw from any responsibility which might attach to him through his having published the above-mentioned report of the Java official.

The Dutch Government has very recently purchased of Dr. Dzierzon and of Mr. Dathe, of Hanover, a number of colonies of Italian bees, and has sent them out to Java in the care of an expert bee-master, intending thereby to introduce advanced bee-keeping into Dutch India.

It may also interest your readers to hear that for the last twelve years Mr. Cori has made constant efforts to import Cyprian bees into Germany, but only four colonies have reached him alive; and these, I may mention, are the only Cyprian bees that have ever left Cyprus and reached their destination alive. A scheme is now on foot which, if it suc-

ceed, may next autumn place Germany—and, perhaps, England—in possession of several colonies of this prince of bees.—J. P. JACKSON, *Bull's Mill Apiary, Hertford.*

WINTER BREEDING AND STIMULATIVE FEEDING.

I suppose it is rather unusual to see bees carrying natural pollen to their hives at midwinter. I saw one stock bringing it in (from the elms, I believe) on the 18th January, and being anxious to see the interior, I took advantage of a bit of sunshine on the 29th and opened the hive. I then found a nice lot of sealed brood and grubs in the centre comb with her majesty close by. This stock was transferred from a straw skep late in October, and fed up, having been put into a wooden hive with some new worker comb. Whatever may be the result if very cold weather sets in, I can aver that they have thus far done well on artificial food.

I have this week examined another which I have had indoors, with exit through a window facing north. In that one I find young bees hatched out, but no eggs, only sealed brood; it must, I think, have received a check. I find that all mine (only five) have plenty of store food. Do you think it right to start stimulative feeding so early as this to keep them breeding, or would they not be more liable to take harm if very cold weather set in?—CHAS. CHAPLIN, *February 19th*, 1878.

[The best advice we can offer in respect of stimulative feeding appears in p. 176 of the *Journal* for last month. —ED.]

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris. Berger, Levrault & Co. 1875.

(*Continued from p.* 179.)

The cells which the bees are in the habit of constructing in the spring with a view to the requirements of the swarming season, differ in form from those which they build on an emergency to meet the want caused by the loss of their queen, the former being round and shaped like a thimble, while the latter, being constructed on the foundations of the common cells are hexagonal. The latter also are at first horizontal, like the common cells; but as they are formed, they are made to curve outwards, so that the end hangs down vertically like the ordinary royal cells. They are very often also found in the centre of the combs. (1.)

It occasionally happens that these queens (as also indeed those which are reared for the ordinary swarming requirements of the hive) are slightly smaller in size than the average queen, though larger than a common bee. It is probable that these under-sized queens are produced from ordinary larvæ or grubs, which have been selected by the bees to be reared as queens only a short time before the moment for sealing them up in their cell had arrived, and which, therefore, had not time to arrive at their full development as royal insects. (2.)

A series of careful experiments made by the author in 1859, 1868, 1871, and 1872, and published in the *Apiculteur* (French Bee Journal) for December 1868 and January 1875, tended incontestably to prove that if bees have at their disposition common larvæ of every age from which to select a queen, they invariably prefer those which at the moment of selection have not been hatched above 24 hours, and that they only select larvæ that are older when the former are not available. The reason of this naturally is that as much time as possible may be allowed to the insect for the special nourishment requisite for its development as a queen-bee before it is sealed up in its cell. It is not, however, necessary for the perfect development of the insect as a queen that the full time be allowed; and Dzierzon is of opinion that the bees can transform into a queen an ordinary larva which is even on the point of being sealed up in its cell, though, as a natural consequence, it becomes an under-sized queen.

It appeared proved, however, since it requires fifteen days and twelve hours from the moment the egg is laid for an ordinary queen to arrive at maturity; and since a special queen selected for transformation as such from an ordinary larva, arrives under ordinary circumstances at maturity eleven days and sixteen hours from the moment of the old queen's loss, that the grub at the moment of its selection as a royal insect must ordinarily have an existence of three days and twenty hours only, of which three days were in the form of an egg, and twenty hours in the form of a grub or larva. It did not appear that it made any difference whether the hive possessed, at the moment of the loss of its queen, young brood in the shape of eggs or not, provided there existed in the cells larvæ of every age, including those of less than twenty-four hours old; but that in cases where no larvæ of less than twenty-four hours old were available, and the bees were obliged to select those which had been hatched longer than twenty-four hours, the queens arrived at maturity in about eleven days and eight hours, or eight hours earlier than in the ordinary case.

Both the French and German authors on bee-keeping distinguished by special names the different cells prepared for breeding young queens, calling those constructed in the spring for the ordinary requirements of the hive *cellules d'essaimage* (cells against swarming), and those constructed for a special emergency *cellules faites après coup* (cells formed after an accident), or *cellules de sauveté* (cells to save the hive). Hives losing their queen can always replace her if at the moment of their loss the bees have at their disposal the larvæ of common working bees from which they can select one or more to be reared as a queen; but the author has repeatedly tried, and always without success, to get bees to rear a queen if they have been for five or six weeks without one. They readily bring up any young brood that is committed to their care, whether eggs, larvæ, or chrysalides; but they seem totally unable to transform any of them into queens.

The author, however, has not sufficient evidence at his disposal to feel certain whether in case a hive loses its queen from natural causes during the winter, the bees could replace her if a supply of larvæ was given them for the purpose very early at the commencement of spring. Nevertheless, many bee-keepers both in France and Germany assert, that if a large provision of chrysalides, in sealed cells, be given to a hive that has lost its queen

EDITORIAL NOTES.

(1) Queen-cells, as a rule, are built where the worker-eggs happen to be. When a stock is preparing to swarm, its combs are usually full of brood, and the queen-cells are formed on the edges of the comb, and simply *hang downwards*; but when a queen is forcibly removed, the cells must be built where the bees are sufficiently numerous to keep up the heat, in other words, in the body of the cluster. The shape of the cell, however, does not appear to affect the inmate either in robustness or fertility.

(2) It is not positively known what conduces to the breeding of under-sized queens, but it is thought that the *imperfect development* may be due to imperfectly prepared food; to want of heat in the surroundings of the cells, or to the larva to be transformed being too old to admit of perfect development, either of which conditions may be the result of others consistent with the venerable Abbé's observations.

previous to supplying it with eggs and larvæ of working bees, the bees will rear a queen for themselves, even though it be a very considerable time since they lost their old one. (3.) In this case, if it be true, it is doubtless the bees who are reared from the chrysalides, which in the first instance are placed at the disposal of the hive that rear the new queen.

It occasionally happens that a queen will lay both ordinary and drone eggs indiscriminately in equal quantities in the small ordinary cells. (4.) The drones produced from these eggs are smaller than ordinary drones; and while in the cells before birth, the cells can only be distinguished by being slightly longer when sealed in than the ordinary cells. There is some reason to suppose that these mixed layings are made by a small-sized queen, slightly larger than a worker-bee, but smaller than an ordinary queen. (5.) The author found, on destroying a hive on this account, in April 1859, a small-sized queen in it; and hence he is led to the supposition, which is strengthened by the fact that the drones produced are smaller than ordinary drones. The German authorities, however, attribute these mixed layings to imperfect fertilisation, or the fertilisation of the queen by a drone who has lost partially the fertilising power.

Other queens, again, are found to lay drone eggs only, which arises from the fact that they have not been fertilised at all. This may arise from want of opportunity, the drones going out only during the bright, sunshiny hours of a warm day. M. Haillon observed a queen who was only fertilised when fifty days old, (6) and who, nevertheless, produced a working bee progeny; and the author, in 1862, observed two queens whose fertilisation was delayed till the nineteenth day of its life for one, and till the twenty-first day of its life for the other, but who laid as regularly as if they had been fertilised at the proper period. From this, it may be deduced that fertility in a queen is not prevented by delay in fertilisation: though more evidence is required on the subject, as the author imprisoned two queens, one on the 31st May, and the other on the 3rd June, 1867, and kept them in confinement to the 4th July, and then released them. Whether they were fertilised or not when out, is not certain; but, as a matter of fact, both queens commenced to lay drone eggs only on the 10th July. It may be mentioned that from the 10th June onwards, both queens showed on every fine day impatience to get out of prison on such days as the drones were about. In 1862, the author also observed a queen which commenced laying drone eggs only on the eleventh day of its life.

Queens who lay drone eggs only are generally met with in the spring. They have probably succeeded queens who have died in the autumn or winter, and therefore have began to lay eggs before they had the opportunity of being fertilised.

These queens who lay drone eggs only prefer to lay them in ordinary cells, contrary to the practice of fertile workers, who almost invariably lay their eggs in drone-cells. Nevertheless, if drone-cells are near them when laying, they seem to have no objection to make use of them. Sometimes they will deposit eggs in the royal cells, though the produce are, of course, drones like the others. (7.) The process of laying proceeds much slower with these drone queens than with other ordinary queens.

The bees seem to have the same attachment for these drone queens as for their more useful sisters. They will no more tolerate the intrusion of another queen into the hive than the others; but the workers never drive the drones out of a hive where there is a drone queen. They live there at ease, when in other hives they are being massacred without mercy. Nevertheless, such a hive can exist but a short time, as the drones will eat up all the store of food, while the worker bees die off daily. It is impossible to introduce a stranger queen into a hive which already possesses a queen of its own. Should a queen endeavour to enter such a hive, the bees on guard at the door will seize her by the legs and wings with their mandibles and close fast round her, so that she cannot move hand or foot. Soon, other bees will arrive from the interior of the hive and join the group, so as to press her on all sides more closely; all their heads are turned to the centre where the poor stranger queen is, forming a ball, or *peloton*, as large as a walnut, and so closely do they hold together, that you may take them up in your hand without their perceiving it. Their excitement is so great that nothing but plenty of smoke will make them let go their hold of her. If long exposed to this treatment the poor queen will be killed. Often she will be seriously hurt, and it rarely happens that she gets off without some considerable injury. The method of introducing a strange queen to a hive or colony of bees that is without one is simple enough. The easiest way of doing so is by a cylinder made of metallic wire, from 2 to 2½ inches long, by 1 inch in diameter, the ends of which must be closed with bits of cork. Then place a super full of comb and honey on your hive, and it will be soon full of bees. As soon as it is full of bees remove it, and uncorking the hole in the top of the super, place the metallic wire cylinder, in which you must have already introduced your queen, on the top of the super over the hole, and cover the whole with a tumbler or other glass vessel. If necessary, cement it all round to prevent the escape of the bees. The bees will at once surround the tube in which the queen is imprisoned in the greatest excitement at first, but soon this excitement ceases, and all will become quiet. They will soon begin to feed the new queen, and after two days' imprisonment you may open the tube and set her at liberty, for the bees will accept her as their own. In most cases she will be accepted after twenty-four hours, but it is safer to wait for two days.

If, instead of a living queen, you give your prisoners a royal cell containing a queen nymph alive in it, the bees will hatch her, and accept her as soon as she issues from the cell.

A royal cell, which has been closed in, will always be hatched by a hive of strange bees who have only queens in an immature stage (as, for instance, hives which have just swarmed), and the queen will always be accepted on arrival at maturity, provided that none of the other embryo queens arrive at maturity before her.*

To kill her rival queens when in their cradle, the queen-bee makes a large opening in the base of the royal cell. If the nymph inside be well advanced towards maturity, she introduces her tail into the aperture and stings it to death, otherwise she leaves it to the bees to drag away and cast out of the hive. This they do, greedily devouring the pap which is left in the cell, and even that which they find in the abdomen of the grub. The bees also

(3) This is in exact accord with our own observation, and we sum it up shortly that old bees are of little use save as gatherers of honey and pollen, and for producing heat in the hive. Young bees are the *sine qua non* for carrying on the economy of a hive. The old ones gather the stores, the young ones dispense them.

(4) In our experience drone eggs in worker cells are the result of accident, if deposited by a fertile queen, and are really very scarce in a hive.

(5) We have never found a 'mixed laying' nearly equal.

(6) This is said to be an impossibility, as fertilisation can only take place during the first month of queen life.

(7) We have never found a drone or other egg laid in a queen-cell; the queen-cell is built around the egg, or the bees carry the egg to the cell: the workers, however, have never been seen in the Act.

* The translator has omitted here some methods of introducing queens, now entirely obsolete.

themselves, without doubt, often open the royal cells and destroy their contents.

As regards the length of life of the queen-bee, both Dzierzon and Berlepsch state they know queens that have lived five years, but this they consider as exceptional. Dzierzon fixed the average age of the queen-bee at four years. Baron Berlepsch, however, after experimenting on the subject for six years, comes to the conclusion that the average age of the queen does not exceed three years, and perhaps not even two years. He adds, 'the changing of the queen occurs much more often than has hitherto been thought to be the case, and is done so quickly that it will often escape notice, and that one hardly knows why or how it is done.'

Of thirteen hives which the author observed closely from April 1857, all of which possessed queens at least two years old at the time, one died in June 1857, four in 1858, and six in 1859. All these queens were found dead or dying outside the hives. Two of them, one of which died in October, the other in winter, were replaced by drone-producing daughters.

The death of the queen always causes a period of stagnation in the hive, more or less long, either before or after her death. This is often the reason why hives which promised well in the spring do not answer the expectations formed of them in the summer.

The drone, or male bee.—The drones never work at all; their only duty appears to be to fertilise the queen. But why, then, are they so numerous? Huber considers that one only of them can fertilise a queen, who remains fertile for the rest of her life. Some naturalists think that they aid in hatching the young brood, but this can hardly be admitted, as they inhabit by preference the combs at the sides and bottom of the hive where the honey is stored, rather than the brood-nest which contains the young nymphs. Indeed, in weak hives, where they might be really useful for hatching purposes, they are least numerous, and are often driven out and killed as soon as they are born.

In strong hives the drones appear in greater numbers and earlier in the season than in weak ones. They are generally first observed in the month of April, though the author remembers having noticed them in 1858 in the month of March.

Drones are not all of the same size; those that are born in the cells of the working bees, and in the cells which join the royal cells to the others, being smaller than the ordinary drones, which are by far the majority. The author made some experiments with a view of ascertaining the difference of weight between drones in the morning before their promenade outside the hives and after their return. He found that 2138 drones weighed one pound in the early morning before going out of the hive, but that it required above 2300 drones to make up the same weight after their return. As the loss of weight no doubt arises from loss of excrement and transpiration, some idea of the amount of honey consumed by the drones in a hive may be formed. The nymph of the drone is heavier by a third than the perfect insect, becoming lighter gradually as it approaches maturity.

The number of drones produced in a strong hive between April and July cannot be less than 3000. In 1863, the author counted 1640 in an artificial swarm, in addition to those which remained in the stock hive, as well as the unhatched brood. The drones are less numerous if the honey crop is plentiful at the end of April and the beginning of May, because then the first crop of honey is stored in the drones' cells, and the queen, in consequence, is prevented from laying in them.

Drones are not strongly attached to their own hives. Habitually, it is true, they return to their own homes, but if anything prevents them getting back, they will readily enter elsewhere. Inside the hive they never move. They probably do not even take the trouble to fetch their own food, but get the other bees to bring it to them. They never go out of the hive except on warm days, and then only during the best and finest hours of the day, generally from about from 1 to 3 p.m. If they have been detained inside long by bad weather, they will go out earlier, by noon, or even before, but this is exceptional. If they are seen outside after the cool of evening begins to set in, it is because they have been driven out by the working bees.

In hives in good condition the number of drones is always proportioned to the honey harvest. For the most part they disappear in July, but if the honey crop fails, occasionally they are driven out of the hives in May and June, while if the flowers continue through July and August, they are occasionally tolerated in the hives till September. If honey is altogether wanting, it is war to the death against the drones. When you see the drones collected outside on the floor-boards of the hives, you may be sure that a massacre is not far off. But if during the summer a hive loses its queen from any cause whatever, the bees will never drive out and kill the drones until another queen has been reared and fertilised by them. In hives without a queen they remain at peace.

(*To be continued.*)

Echoes from the Hives.

Kelvedon, Essex, Dec. 28th, 1877.—SITE FOR APIARIES.—'I have not written to you respecting our "mutual friends," the little honey-gatherers lately, but I do not see any reason to alter my plans at present. I intend trying bar-frames next season, but there is one phase of the question that has been somewhat neglected. I refer to the Site for Apiaries. I have found in my somewhat lengthened experience that the position of bees has more to do with their success than most bee-keepers suppose. The very best position possible, in my opinion, is under a tree, the hives facing south-east by south; the advantage of the tree being that in the early part of the season it allows the sun to shine upon the hives, there being no leaves to shade them, and protecting them from its rays only when they become too strong. I do not believe strong stocks of bees could possibly keep at work exposed to the direct rays of a summer's sun; they must either swarm or "hang out" in front of the hives. You will notice I refer to "strong" stocks. I have a special position—a sort of Italy, to which I send the weak ones; it is a large pit where the earth has been taken for brick-making, very much protected and very warm. They generally rally, except in cases of old age, the hives having few bees requiring all the heat possible to enable them to hatch the brood and allow enough workers to go and collect honey and pollen, the strong and well-filled hives requiring a cool position to enable them to store the honey in the tender combs.

'My bees are wintering very well at present, but it is early yet to know anything about them; one thing, I have not killed them with kindness, unless letting them alone is the best way of showing it: I do not think I have bestowed an hour on them since the honey season. They are all standing dry and quiet. I shaded them all on Wednesday morning from the sun, as the snow covered the ground, and it would have tempted them out to their certain destruction.

'Next year I am going to try for a large number of small supers, as well as nadirs. They are more saleable. There are few buyers who like a 60lb. nadir, but many would take a 5lb. super. I shall still continue the nadirs. I believe they are first-rate for large quantities. I have written more than I intended, but not more than I should like to write about them. If my time were not so occupied I would try a lecture upon bee-keeping; but I see no hope at present.'—W. T. B.

Feb. 11th.—'The bees are just beginning to move about. The willows are not so forward this spring as I have seen them, which is owing to the dull weather, there being no sunshine.'—W. T. B.

Rochford, Feb. 13.—'I wished I could have stayed a little longer with you to have had more conversation relative to bees, &c., but for the short time in your company and the *sight* of the bees I assure you I was delighted and well repaid for my trip; and if I am spared I hope to pay you another visit when the hives are in full working order. Nothing can be *more* perfect in the manipulation of bees in the hive than I saw, which I presume is a "standard" for handiness, observation, and handling the bees: it is all that can be wished for.

'I am very, very sorry for your loss by *fire*, which in itself knows no bounds and saith not "it is enough." Permit me to offer my warmest sympathy for you, and trust it may never occur again. It really is a serious loss to any journalist to lose valuable *wood-cuts*, which of course is a work of time to replace, but founts of type could be immediately supplied.'—D. L.

Falkirk, 13th Feb.—'We have had a great deal of rainy weather here until last week. We have had little dry weather for twelve months. My bees did nothing last season; it was just continual feeding. I have some hives in good condition, using the quilt for top covering on all. Eleven I took to the heather are almost now gone; they also required sugar, but I had little opportunity of giving it to them, being so far away. There were few bees in them when I brought them home, and the combs were damp and mouldy. I just made up my mind then that all of them would be lost. Wishing good health to yourself and family, and success to the *Bee Journal*,—no new one, but more support to you.'—William Sword.

Brislington, 16th February.—'I am glad to say that my bees are doing well, all apparently strong and healthy. During a sunny hour of one day this week they were out by thousands, and the air was melodious with their cheerful hum.'—P. McPherson.

Queries and Replies.

Query No. 224.—I have noted that one of my best stocks into which I introduced a Ligurian queen in the fall has lost a great many bees during the winter. I have seen them fly from the hive when the weather has been very cold, and never return both this month and the last, when all the other stocks were still. Could you give me any reason for it? It is a puzzle, and I feel very anxious about the stock getting through on account of the Ligurian queen it contains. They seem to have plenty of food, and are well wrapped up. Kindly say what you think is the cause—J. Hartley.

Reply to Query No. 224.—Your bees are doubtless suffering from dysentery, from what cause we cannot say, but think it may arise from your over-carefulness in feeding them, they having a Ligurian queen. You had better read your late *Journals* on the subject of dysentery; we can offer no better suggestions.—Ed.

Query No. 225.—Is there any difference in the size of the frames in the Cowan and Abbott Standard Hives? If so, what difference? Will not the bar-frames of one hive fit into the other?—*School House, Berkhamstead.*

Reply to Query No. 225.—The hive used by Mr. Cowan is substantially the 'Woodbury Hive;' the same as described in *Bee-keeping for the Many*, published many years ago by the Editors of the *Journal of Horticulture*. 'Abbott's Standard' is much larger than the hive used by Mr. Cowan; but 'Abbott's Cottage Woodbury' is of the same size as the original Woodbury; and if there is any difference in the frames, it is only in the shape of their *ends*, which are in the Abbott so formed as to be self-adjusting. The Abbott Cottage Woodbury, the Cheshire, the Cowan, and the Woodbury hives being of the same dimensions from front to rear, the frames ought all to be interchangeable, but there are doubtless trifling differences. We can, however, guarantee the Abbott frames to be of the correct dimensions for either hive, if properly made.—Ed.

Query No. 226.—What is to be done with a hive the stores of which are almost all crystallised? I imagine many must be in this condition, last year's honey having a great tendency to crystallisation, in these parts at least. An answer in *B. B. J.* for March will oblige.—W. J. F., *Wolverhampton.*

Reply to Query No. 226.—The crystallised honey was probably obtained from the ivy, one of the latest resources of bees before winter sets in; and it seems a wise provision of nature that such honey should crystallise, and thus prevent its watery particles from becoming a source of disease in the hive. It is a singular fact that the honey from ivy and from heather, both very late sources of supply, should dry up so rapidly: the ivy honey granulating, and the heather honey becoming tough, like glue. There is little danger to the bees in either case, provided water be obtainable; but if the stuff in the cells be sugar syrup, improperly made, the bees will starve with it in the hive.—Ed.

Query, No. 227.—1. What is your price per lb. for the comb foundation?—*Reply.* 5*s.* packed in box.

2. About how many superficial feet would go a pound?—*Reply.* From five to six.

3. Am I right in taking that you fill about two-thirds of the frames with it?—*Reply.* Yes, clear of both frame ends.

4. I presume it is attached to the tops of the frames by wax, same as natural comb?—*Reply.* Turn the frame wrong side up, set the sheet in its place, and pour molten wax along both sides of it with a wax-smelter.

5. Would you send me a small bit as sample by post as I have never seen any?—*Reply.* Sample sent.

6. Please send me a piece of zinc pierced, for what you call or approve of gentle feeding for spring.—*Reply.* Pattern sent.

7. Do you use the quilt always, winter and summer? For instance if I put another hive as super on the top, same to be as stock hive; shall I put the quilt over it? I have them on all my hives for the first time this winter, and they have done grandly?—*Reply.* We find the quilt the best for all times, except when supers are on, and even then on the parts not covered by the supers.

8. What kind of adapting board is best between two hives worked over each other. You have often said there should be adapting-boards in all such cases?—*Reply.* If an adapter be used at all, a wooden one would be as good as any, unless perforated zinc be preferred. If a wooden one, there should be slots in it not less than a quarter inch wide.

Query, No. 228.—*Bees Dying.*—Can you suggest a reason for bees dying under the following circumstances: They were in a wooden hive composed of two stories, with double sides and dead-air space, a piece of matting on top, with two or three folds of carpet and wooden roof. I tried to take away lower story in autumn, but the cluster was continued into it, so had to leave it. On examining the hive a few days ago I found the top story deserted, though there was plenty of food in it, and the bees (of which there was a large number) packed in and between the combs in the lower story and all dead. The hive and combs are quite free from damp, with the exception of a little at the sides of the floor-board from drifting rain. When fed in autumn they filled the centre combs, but I moved them and put two or three empty combs in their places. We have had no severe weather, and I was at a loss to account for the bees

dying. The two stories fit closely on each other, but there is no strip of wood covering the junction. Do you think that there was not sufficient covering on the top, and, consequently, too much ventilation?—J. W. N.

The food left was all sealed.

Reply to No. 228.—It would appear that the disaster was caused not by the uncovered joint between the two boxes, but by horizontal spaces between the two sets of combs within them. The bottom set of frames, we will suppose, was so arranged as to reach, and be flush with, the top of the walls of the lower box, although in many storifyers they are sunk into rabbets at back and front, and leave a space above them.

Taking them, however, to be flush with the top of this hive, the upper box must have frames that will not reach down to touch them, or great crushing would ensue in manipulating either the sections (*i.e.*, the boxes) or the frames, therefore there is at least a quarter of an inch between the bottom of the upper set of frames and the top of the lower set. Then there is the bottom rail of the upper set of frames occupying, perhaps, an eighth of an inch, and there is the space above between it and the combs; for, as a rule, bees will not build within three-eighths of an inch of a bottom rail, but often leave more space, and therefore it will be seen that there is a considerable distance between the bottom of the upper combs and the top of the lower. There is three-eighths between comb and bottom rail, one-eighth rail itself, quarter under rail, and three-eighths thickness of top rail, to which lower combs are attached, making a total of an inch and a quarter of partly wooded space between one set of combs and the other; and we have little doubt but that bees were caught napping in the lower box by a short snap of cold, and could not travel over the suggested impediment between the two sets of combs, and died so, —even so.

There is another element in the case, there was not a drop of unsealed honey in the hive; and, therefore, though a few straggling bees might have attempted a raid upon their stores, the wax-sealing being cold and hard, would be a bar to their endeavours, besides which there is the singular fact that bees do not always know, that *sealed comb* contains honey, particularly if it be dry. We have many times seen bees neglect sealed comb when it has been offered to them in the open air; but when a few cells have been punctured, and they have learned the nature of its contents, they soon ransack and rifle it.

Query No. 229.—*Driving.*—How can I drive from an old skep into a bar-frame hive? The skep has an opening in the top about 4 in. round. I cannot turn it upside down as it is fast to a box with a bottom in. Can I drive them through the top, that is, when they are ripe for swarming, instead of letting them go away? They do not require food, and are gathering pollen.—A Subscriber, *Stourbridge, February* 20, 1878.

Reply to Query No. 229.—The description given is not clear enough to enable us to judge of the actual facts of the case, but enlargement on it may prove beneficial at this season to many others beside our correspondent. It is scarcely feasible that the skep is so fixed (?) to the box as to be irremoveable; nevertheless, it may not be pleasing to our friend to undertake what doubtless to him appears a formidable task. We are not unfrequently asked to give 'directions for driving' that will preclude the necessity for inverting the hive to be 'driven,' and we should be glad to be able to do so, if such directions could be general. But it is unfortunate that 'hive-construction' has not until of late received the attention due to so important a science, and even at the present time, there are 'legions' who deem '*anything*' good enough for bees to '*be put into*;' we had we had almost said '*live in.*' Experience has taught that bees can (by the usual process) be driven from any receptacle in which they may be located, provided there are no obstructions to their going straightway; but in the case before us, the skep, probably 12 or 14 inches in diameter, has only a four-inch hole in the centre of its crown, so that though an empty skep be placed upon it, there are at least four inches of roof or dome all round the centre hole of the lower hive which will obstruct the free passage of the bees to the empty skep above, and it will be found as a rule that the bees will cuddle together under this partial dome, rather than go through the four-inch hole, and by a circuitous route gain the sides of the imposed hive. From a square or round hive, with perpendicular sides only, such as are formed by the walls of a wooden frame hive, the bees may be driven fairly well into a hive of corresponding dimensions; but they would 'run' better if the hive were inverted, because there would be no space into which they could retreat and find comparative safety *under* the frames or combs; and because in an inverted hive the then lowest part of it has the least space in which the bees could pack themselves, while the then upper would be the most easily acted upon with a feather or small brush, for the dislodgment of bees unwilling to leave it. Our correspondent should, however, set about his work in the orthodox way. It is only 'pretending,' to say the skep cannot be removed from the box; in our hands the box and skep would quickly be separated, or demolished if necessary, and combs and bees transferred, or an artificial swarm made, before the bees had time to recover from their first surprise.

We should advise 'A Subscriber' to visit an apiary where the operations in question are every-day occurrences, he would not then think it impossible to remove a skep from the top or bottom of a box.—Ed.

Query No. 230.—Please would you answer in your next month's *Journal* the following:—

1. Whether it would be wise to feed the bees to cause them to breed if they have got plenty of honey, as mine seem to have plenty of honey, and plenty of bees, and little pollen?

2. Do you mix your pea-flour with anything for pollen, or give it them in the powder?

3. Does the queen lay eggs in the queen-cells before swarming, or the bees form queen-cells around worker-eggs, or would it be of any advantage to put them a queen-cell in to cause an early swarm?—J. P.

Reply to Query No. 230.—1. If you feed with artificial pollen and break a few of the honey cells daily, breeding will be promoted sufficiently.

2. Pea-flour is given dry, as dust, sprinkled on the shavings.

3. Queens do not lay eggs in queen-cells, the workers form them, and the queen would destroy them if they would allow her to do so. Putting in an empty queen-cell would have no good effect whatever.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

New Correspondents.—We respectfully apologise for our inability to decipher the names and addresses of those *who, like ourselves,* are compelled through pressure, to write hurriedly, and sincerely trust that our custom of cutting out and fixing such addresses to the envelopes containing our replies will not be considered either slighting or offensive. The course we adopt appears to be the only one by which the reply will have a chance of reaching its destination; and, although it may appear absurd, we cannot forbear stating that on more than one occasion the address sent to us, though cut out and affixed to the return envelope, has been found 'insufficiently addressed' by the postal authorities or servants, and have been returned to us thus endorsed. It would greatly facilitate our labour if our correspondents would enclose that essential to our contract, 'A Stamped Directed Envelope.'

SUBSCRIBERS' COLUMN.

To meet the wants of Subscribers who require a cheap mode of advertising their wants, we have opened an Advertising Column, for non-trading Subscribers only, wherein they may make their wants or wishes known at the rate of One Penny for every six words, or part of six words, but no advertisement must contain more than thirty-six words.

Stamps to accompany in all cases, and there can be no reduction for repetitions.

FOR SALE a few Duplicates of Scarce Bee Books. For price and particulars apply to J. G. DESBOROUGH, 12 St. Peter's Hill, Stamford. fo. 63.

MELILOT CLOVER PLANTS, 1*s.* per dozen. T. S., Broadwater, Worthing, Sussex. fo. 63.

FOR SALE.—First 48 Nos. of the *B. B. Journal*, all complete, unbound, very clean, 55*s.* J. MUTTON, Oxendon Market, Harborough.

WANTED, second hand, two or three of COWAN'S HIVES, ditto Abbott's Standard, ditto Stewarton. Address, stating price, W. WELLS, School House, Berkhamstead.

WANTED, Nos. 16 and 19 of *B. B. Journal*. Address, stating price, to W. BROUGHTON CARR, Higher Bebington, Cheshire.

FOR SALE.—Abbott's Little Wonder, too small for owner, equal to new, 10*s.* W. M. LIGHTFOOT, York Villa, Liverpool Road, Chester.

FOR SALE.—Strong plants of beautiful Foxglove, per 100, on rail, 2*s.* 6*d.*

FOR SALE.—Bevan on the Honey Bee; and Bee Keeping, by the Times Bee-master. Quite new. Post free for 10*s.* Letters to the Editor.

PLASTER CASTS from Worker Combs, for making comb foundations up to 14 inches by 9 inches, 2*s.* 6*d.*; drone for Sectional Supers, 8 inches by 4 inches, 1*s.* each, or 3*s.* per pair, packed. R. LIFFE, Hinckley.

GIANT ROCCA ONIONS for transplanting strong plants, per 500, on rail, 2*s.* 6*d.* HENRY GUMM, Uxbridge Road, Southall.

SECOND-HAND HIVES.—All kinds, and at all prices, from 2*s.* 6*d.*

DRY PUFF-BALL, 1*s.* per packet. S. F. CLUTTEN, Fressingfield, Harleston, Norfolk. fo. 38.

GLASS HONEY BOTTLES (best flint glass) with wide neck for feeding. Hold 8 or 9 lbs. each, properly packed, 3*s.* each. C. J. SMITH. fo. 45.

HONEY-COMB.—Wanted a few pounds of clean Worker Comb (empty), in sheets as large as possible. ARTHUR S. B. MILLER, Apiarian, Benson Street, Huntingdon Road, Cambridge. fo. 57.

ABBOTT'S Little Wonder, equal to new, too small for owner, 11*s.* fo. 100

FOR SALE.—Vols. III. and IV. of *British Bee Journal*, complete. Unbound, 5*s.* each. Letters to Editor.

LANGSTROTH on 'The Hive and Honey Bee.' 9*s.* Free.

QUINBY on 'The Mysteries of the Bee-hive,' 8*s.* 6*d.* Free.

FOR SALE.—Nos. 1, 2, 3, 4, 8, and 10, of *B. B. Journal*, 1*s.* each.

VOL. II. *B. B. Journal*, with Index, minus the No. for May, 5*s.*

VOL. II. *B. B. Journal*, minus May and Aug. Nos., 3*s.*

INDEX, Vol. I. Price 6*d.*

VOL. I. *B. B. Journal*, very scarce, 30*s.*

VOL. II. *B. B. Journal*, scarce and valuable, 21*s.*

The British Bee Journal

AND BEE-KEEPER'S ADVISER.

The BRITISH BEE JOURNAL is published monthly, and contains the best practical information for the time being, showing what to do, and when and how to do it.

Subscribers to the JOURNAL are first, second, and third class. First class are those who subscribe 10*s.* 6*d.* per annum, from any date, who are entitled to immediate replies, per post, to their queries, when a stamped directed envelope is sent. Second class are those who subscribe 6*s* per annum, and whose queries can only be replied to through the columns of the JOURNAL; and Third are Clubs of Cottagers, each consisting of not less than six, to whom the charge will be 1*s.* 6*d.* each Member.

Subscriptions, Correspondence, and Inquiries to be addressed to

C. N. ABBOTT, Bee Master,

SCHOOL OF APICULTURE, FAIRLAWN, SOUTHALL, LONDON.

LIGURIAN OR ITALIAN ALP BEES.—Stocks and Swarms of these beautiful and superior Bees, from the finest strain of Ligurian Bees to be found in Europe, containing imported Queens from Switzerland, specially selected.—Also, CARR'S IMPROVED HUMANE STANDARD BAR-FRAME HIVES. Apply to MR. CARR, Newton Heath Apiary, near Manchester.

HEALTHY Stocks of Ligurian and Hybrid Bees, with young prolific Queens, in Bar-frame Hives, at various prices according to strength. Also Honey Extractor, price 35*s.* JOHN WALTON, Honey Cott, Weston, Leamington.

COMB FOUNDATION.—A quantity for sale.—First Prize at Dundee and Edinburgh. Apply, W. RAITT, Liff, by Dundee.

BEE-HIVES.—PETTITT'S METAL RACK BAR-FRAME HIVES.—LIGURIAN BEES of the purest race. Imported QUEENS, SWARMS, and STOCKS. English Stocks or Swarms. See Illustrated Catalogues, post free, 3*d.* Please address, W. J. PETTITT, Apicultural Institute, Dover. fo. 33.

HIVES.

THE IMPROVED IFIELD BEE HIVE, having Three Glass Windows, with Shutters. Price, complete, on legs, with Supers and Cover, 45*s.* See *B. B. Journal* for July. Made and sold only by the Inventor R. C. BLAKER, Ifield Vicarage, Crawley, Sussex. fo. 8.

THE SMOKER'S BEE PIPE, two Pipes for one. Price 1*s.* 8*d.* post free.

Office of the *British Bee Journal*, Fairlawn, Southall.

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Fifteenth Edition. Price One Shilling.

SEVENTY POUNDS A-YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to MRS. J. W. PAGDEN, the Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 36.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 60. Vol. V.] APRIL, 1878. [Published Monthly.]

Editorial, Notices, &c.

APRIL.

The past month of March, if 'a peck of its dust be worth a king's ransom,' has showered untold wealth upon the British nation, for a drier and more dusty period can scarcely have been within the memory of man. Its coming in was traditionally rough, and it was hoped that its lion-like violence would abate with its waning days; but, alas! its rude and angry blast in 1878 will render it memorable in the annals of time; for on Sunday, its 24th day, its terrible breath caught the sails of the good ship Eurydice, and blew her over on her beam ends, when she instantly sank with three hundred souls on board, and that, too, within half-an-hour of home. Ours is not a journal in which such disasters are usually chronicled, and we do not now mention this with a view to investigating into the nature of the calamity, or apportioning the blame which must be due to some one. But inasmuch as the same freezing blast has probably capsized the hopes of many bee-keepers, we think it a subject which may be fairly mentioned, for in bee-keeping, as well as in nautical affairs, what are called accidents are usually preventable, are capable of being foreseen, or could have been provided for. '*Who would have thought*' that so noble a ship within half-an-hour of port, all sails set, and riding so gaily, would have been caught in the fatal squall that filled her sails with snow, and hurled her to the bottom of the sea? Yet it could have been foreseen, as by the same rule the disasters which the sudden snap of cold will have caused to bee-keepers might have been foreseen, and many signals have been made in this *Journal* as warnings to provide against the dangers which would arise therefrom. We are writing on the 26th, and for the past four days the weather has been 'biting cold,' and the wind rough with scudding snow and sleet, and as a consequence bees have been confined to their hives; their entrances have, however, been nearly closed, and a few pieces of barley-sugar laid under their quilts or over their feeding holes to keep them from the effects of loss of income. In cases where breeding was known to be going on, liquid food has been administered to insure them against the effects of drought. In apiaries where these precautions have been neglected there will be the usual outward signs of starvation within; white bees and others not fully developed will be found on the alighting-board, forming evidences of a check having been received, which, if not quickly perceived and understood, will result in the loss of the colony. During February there were many hours of sunshine, and bees gathered fairly from natural sources, and were in many instances stimulated to breeding in a more than natural degree, and where this went on sufficiently to increase the population in an appreciable degree the cold blasts and nipping weather will do little harm, provided they do not suffer for want of water or thin liquid food, for the population will consist of young bees capable of much labour. On the other hand, where breeding has not caused an increase of population through the bees of last year having died of the labour of producing the brood then present in the hive, the danger will be great, as the old bees will continue to die, probably in greater proportion than young ones will hatch out; and in that case, the heat-producers diminishing, the brood will not develope, and the colony will suffer accordingly.

Spring Feeding.—The time is approaching when in the natural course of events bees will be breeding largely, and it must not be forgotten that they often so fully believe in the continuance of the income which they derive from the fruit-blossoms that they consume nearly all their own stores in their eagerness to increase their numbers, and that a few days of wet weather may bring them to the verge of destitution through their being unable to get abroad, and in such instances food should be given in no niggardly spirit, for the demands will be great, and a check most injurious. This is an oft-told tale, but one which loses none of its value by repetition; most bee-keepers are aware

of it, but few practise it until the unpleasant necessity is forced upon them by the evidences above described.

Swarms.—It is possible that swarms may appear in favoured localities during the present month, and it will be evident that as they will (as a rule) be placed in empty homes, a very short period of cold weather will seriously impoverish them, as they will daily consume nearly the whole of their income in forming their combs and producing brood. It should be remembered that a sudden check to the work of a swarm that has not filled its hive, has the effect of stopping the formation of comb, and such work will not be resumed until the incoming of honey from the fields or elsewhere is in excess of their requirements, and then, as they will want storage room, they will build drone instead of worker cells, and next year they will produce

Early Drones.—A swarm that has been checked as above suggested, or one that in its early days has gathered honey more rapidly than it could be consumed in breeding, will have drone, or storage cells, nearer the centre of the hive (*i.e.*, the brood-nest) than one that has obtained a steady income; and in its second year, if it exist so long, it is highly probable that drones will make their appearance much earlier than ordinarily would be the case. An instance has come under our notice of drones having appeared in numbers in East Kent on March 20th, and the owner is delighted with the prospect of an early swarm; but with *our* notions, we would have preferred that the bees had continued to breed workers until drones are likely to be required, for if they (the drones) are permitted to live, which is scarcely probable during such weather as we are now enjoying (?) they will have been useless consumers in a time of scarcity; and if destroyed, which is highly probable, the cost of their production will have been entirely wasted. Were any of our stocks to produce drones so early, we should look upon them with great distrust, and on the first fine day would overhaul them to ascertain the cause of their (the drones') abnormal appearance and would endeavour to rectify the condition of things which tended to produce them. If in a frame hive, we should expect to find a drone-comb in the wrong place, or that something was wrong with the queen, and the matter could be easily dealt with; and if in a straw skep we should transfer its contents to a bar-frame hive, so that it might be seen where the cause of the mischief lay, and then it could be easily remedied.

Queenlessness.—It is usually supposed that the bees of queenless stocks do not carry pollen to their hives, but this we know to be a mistake, since we have on many occasions seen pollen taken home by bees in spring that had been queenless during a whole winter, and that too when there was no breeding going on through the agency of the pest called a 'fertile worker.' At the same time it may at this season be fairly inferred that where pollen is not carried into a hive in fair proportion with other stocks, that the one under observation is without the impulse given by a breeding queen to her labouring population. It is always, however, well to examine such stock before coming to a positive conclusion, for sparseness of income through weakness in numbers may be the cause of sluggish oviposition, the queen all the while being of exemplary character, and quite willing to perform her part when her course is clear and the rein given; that is to say, when the incoming is sufficient, and promises to be continuous, and when the population has increased.

We have often *observed* queenless stocks, we may say, at all times and seasons, and have begun to discover that they seldom carry pollen (after the brood has hatched out) except in early spring. There will, of course, be instances to the contrary, but only perhaps sufficient to prove the rule, or theory, as it will doubtless be called, that we now set up, viz., *that only the old bees of queenless stocks carry pollen.* In summer if a stock recently become queenless by swarming be observed, the bees being all young (comparatively), no pollen will be gathered, save perhaps by two or three old fogey bees that missed the chance of joining the swarm; or in the event of the queen having died naturally, the cast* (?) which in the character of a first swarm would have issued, but if it be left until the bees become 'old,' it appears to us that they gather pollen because it is their pleasure to labour, and they are incapable of any other form of self-indulgence. Indolence is not a trait in the character of bees, but there is evidently a form of instinct that induces them to husband their strength; and although it is well known that young bees recently queenless will freely gather honey when it can be procured, and store it for their future sustenance ('for 'tis their nature so to do'), yet will they not wear themselves by gathering what is not necessary for their own existence, and, as before suggested, do not again gather pollen until old, and usually only then in the spring.

It is remarkable that although bees are so industrious in summer, and lay up much treasure, they never live to enjoy it. They labour for the common weal, and prepare for generations unborn; there is none of the old failing which dictates the policy, 'Let us eat, drink, and be

* We here use the term 'cast' because a young unfertile queen would lead it off, and in contradistinction to a 'first or prime swarm' which is always led off by a fertile queen.

merry; for to-morrow we die:' no; they provide for their posterity, and deem their labour their greatest pleasure. In bee-culture, however, moralising is but slightly permissible, and therefore we return to the practical, and advise that in all cases of queenlessness at this time of year it will be better to unite the queenless stocks to others near them rather than incur any expense in providing queens for them. In the first place, there is great difficulty in obtaining fertile queens at this season, and consequently they are expensive; then the risk of sending is great if they have far to go, and they may be so chilled as to die in their cages if they live to reach them; again, there is the difficulty of uniting queens to stocks of old bees—a process we never recommend, because we have found that only young bees will feed encaged queens; and therefore unless there be many of *them* we often advise their destruction rather than that the risk consequent on uniting to a stock containing a queen be incurred. We have before stated that queenless bees will not *work* in the true sense of the word, and that consequently they attain greater age than they otherwise would; nevertheless, such bees are comparatively valueless as labourers, and dangerous as citizens and subjects, for they are most unwilling to accept service under an imposed queen or one to whose subjects they have been united, and we therefore caution those who intend to unite old bees in either way, to exercise all possible caution in respect of the queens if they are considered valuable, for although they may have been encaged for several days in the populations containing the ancient 'orphans,' they, the bees, will be nearly sure to 'encase' them when they are set at liberty, and encasement, as a rule, means death.

Water Dearth.—The importance of a water supply during a dry season, such as we have passed through during the past month, cannot be over-estimated. Bees when breeding require much water; they prefer it saline and aerated. A rain-water butt or cistern with a leaky tap is very attractive to them, especially if the drip falls upon a stone and becomes pulverised into spray, which will render the earth around sufficiently moist to afford a supply. A dish filled with moss and water is an agreeable mode of supply, and tea-leaves are said to afford welcome media, not probably because bees are fond of tea, but because they absorb the water and aerate it.

A water-butt from which the water oozes through a joint is a favourite resort with *our* bees—they might go into the butt and sip off wooden floats if they chose, but they prefer to lick it up where it can scarcely be perceived. There is no danger to them in this way of obtaining a supply, and instinct which teaches it must be acknowledged to have been wisely ordained.

Preparation.—While there is time bee-keepers should prepare their hives and supers, so that there may be no hurry or confusion when they are actually required. There are plenty of advertisers in our columns, and plenty of choice; and if bee-keepers would accept the invitation to ORDER EARLY, we are assured from experience that they would confer a great boon upon manufacturers.

Beehives are cumbrous goods, and the public taste so varied that it is impossible for any manufacturer to be prepared with everything that may be required, for they will not pack away one inside another like patty-pans, but take up more space than any ordinary manufacturer could afford to pay rent for; therefore, as a rule, hives must be ordered before they will be made, and as making them takes considerable time, we repeat the invite and recommendation to ORDER EARLY.

Supers.—We are constantly being asked, 'Which are the best supers?' and in every case our reply is that sectional supers are by far the best in every respect; for they are cheaper than any others, more convenient since they can be added to or diminished at will, they are snug and comfortable to the bees, and are readily taken to by them, their size can be regulated to suit the requirements of any hive, and they can be most conveniently stored away when filled, or packed and sent off to customers or friends. Each section according to our recommendation is of about the size of an ordinary brick, and like bricks they can be stacked together side by side, or in piles, to suit the fancy of their owner. They however can be made of any size, but, as with hives, we recommend those who require them to ORDER EARLY.

Adapting Boards.—There is evidently a sort of misunderstanding regarding the nature of these. At the earliest stage of improvement it was found necessary in the case of hives (skeps) whose crowns were not level to interpose some medium that was so, to give a firm and even base on which supers could be placed; and this base (if it may be so termed) being of thin board, was called an adapting board. Originally, adapting boards were made with round holes in their centres, to match the holes left in the crowns of skeps; but when it was found desirable to exclude the drones and queen from a hive, a grating was devised, which, while permitting the passage of the workers, prevented that of the two classes of bees first mentioned.

Improvement followed improvement, until the 'adapting-board' became actually a 'drone-and-queen excluder,' and that ought really to

be the name of the article now known as an 'adapting board.'

QUEEN AND DRONE EXCLUDERS.—With regard to the value of these there is a great variety of opinion, it being urged by some that if the stock-hive be properly constructed and cared for, neither queen nor drones can do much, if any, mischief. By others it is argued that drones are beneficial in supers, inasmuch as they (are said to) suck out the watery portions of the honey, and thus help to prepare it for being sealed and rendered saleable as comb-honey. Anyhow, there arose a demand for queen and drone excluders, and the ingenuity of bee-keepers has been taxed to provide a means by which their exclusion could be ensured. The result was that zinc with three-sixteenth inch perforations came to be regarded as the *sine qua non*, and for some time it gave satisfaction; presently, however, it was found that queens could get through it, and having deposited eggs in the drone cells of the supers could return to the stock hive, while the poor drones when hatched were confined to the super, and died there. A zinc with smaller perforations was then tried, called 'twelve-hole,' and that has had a fair run, but has been found to be uneven in its results. With some queens and drones it was a total excluder, while with others it was useless for the purpose intended. In some cases it acted also as a pollen preventer, causing the lumps of pollen to be torn from the bees' legs, while in others it permitted their passage, as could be proved by the appearance of pollen in combs from which it was intended to be excluded, and hence it is not considered a satisfactory intermediary. Now, having read the published translation of the work of the venerable Abbé Collin as far as we have been favoured with it, and having received some specimens of the queen-and-drone excluders used under his advocacy, we were surprised to find the difference that existed in the dimensions of the perforated zinc used in England and the perforated iron, for such it is, used in France. The English perforations are circular; the French are oblong, like the small hole of a money-box; the latter being appreciably narrower than the former. It is quite understood that we are writing of drone-and-queen *excluders*, and not with any reference to pollen-preventing, and we feel bound to confess that the French have the best of it. Worker bees can barely squeeze through the English round holes, and queens can sometimes follow them, for it appears that a larger *round* hole is required to admit the abdomen (and legs) of a worker than is necessary for the passage of its thorax, whereas with elongated perforations, those that will barely allow the thorax of the worker to pass, will permit the passage of its body and pollen-laden legs, but will not admit the thorax of a queen.

Taking the hint thus suggested by experience with both kinds of perforations, we have prepared a drone-excluding adapter which we think will effectually fulfil the purpose for which it is intended. It is a simple frame, forming the bottom of a crate intended to be filled with super sections; and instead of being covered with perforated metal, strips of glass are used, which being cut straight on each edge, and the interstices gauged, one width only will be found in all the excluders, although the strips may individually be of any accidental width. We cannot be quite sure that the gauge we have adopted is absolutely correct, but as soon as the weather will permit, we will try it and report on it; and as such report will appear in our next number (for May), we feel that it will be in time to be of use; and, if successful, as we have every reason to believe it will be, the expense to amateurs of perforated zinc will be obviated, and a means suggested which will enable them to regulate the width of the openings between the glass to suit any variations, real or fancied, which they may observe in the size of the bees, drones, or queens.

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.

An exhibition of bees, honey, and hives, in association with the Summer Show will be held in Ealing Park, on Wednesday, July 10, 1878.

The following is the Schedule of Prizes. Open to all England, with exception of classes 6 and 7.

BEES.

1. For stocks of bees, exhibited with queens in observatory hives, 20*s*., 10*s*., 5*s*.

HONEY.

2. For the best super of honey in wood, or wood in combination with glass or straw, 15*s*., 10*s*., 5*s*.

3. For the best super of honey in glass, 15*s*., 10*s*.

4. For the best exhibition of sectional supers of honey, not to exceed 2½ lbs. each, 15*s*., 10*s*., 5*s*.

5. For the best exhibition of run or extracted new honey in glass jars, 15*s*., 10*s*., 5*s*.

Presented by Harcourt Turner, Esq., Acton.
(*Open only to Subscribers to the Society.*)

6. For the best super of honey gathered in the district, 12*s*., 8*s*., 5*s*.

(*For Cottagers of the District only.*)

7. For the best super of honey. First prize, a complete frame-hive, value 21*s*. Presented by Rev. E. W. Relton, Vicar of Ealing. Second prize, Hunter's *Manual of Bee-keeping*, presented by the Author.

HIVES.

8. For the best complete hive on the moveable comb principle, 20*s*.; 10*s*.; 5*s*.

9. For the best collection of hives, bee furniture, and apiculturists' necessaries, 30*s*.; 20*s*.; 10*s*.

DRIVING.

10. For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, and capture and exhibit the queen, 20*s*.; 10*s*.

Conditions of this competition may be known on application to the Hon. Secretary, JOHN HUNTER,
5 Eaton Rise, Ealing, W.

THE SUNSHINE OF 1877.

A year's sunshine is rather a unique thing to measure, but it is done, and the result published by Mr. W. Ellis, one of the assistants to the Astronomer-Royal, at the Observatory, Greenwich. The following is the summary for the sunless year 1877:—In January the sunshine lasted for 35 hours out of a possible 259; in February the proportion was 40 out of 278; in March, 99 out of 367; in April, 72 out of 415; in May, 147 out of 482; in June, 267 out of 495; in July, 177 out of 497; in August, 159 out of 449; in September, 106 out of 377; in October, 101 out of 329; in November, 57 out of 264; and in December, 27 out of 243; so far as Greenwich is concerned. During the whole year the sun was above the horizon 4435 hours, and of those it was visible at Greenwich 1287 hours or 28·8 per cent of possible sunshine. There were 81 days during the year on which the sun was not visible at all. It will thus be seen that during January there was a daily average of about 67 minutes' sunshine; in February there were about 86 minutes per day; in March the average increased to nearly three hours and a quarter per diem; but in April it went back to 2 hours and 24 minutes. In May, as the days lengthened, there was an increase of sunshine that brought the average to about 4 hours and 40 minutes per day; in June the average rose to 8 hours and 50 minutes; the average days being each 16½ hours long. In July the average length of the days was about the same, but the sun showed himself during 5 hours and 42 minutes per day, or only about one-third the time his light and brightness might have gladdened the hearts of bee-keepers. During August the average sunshine was only about 5 hours per day, and in September it ruled for only 3¼ hours; and the wonder is how crops were ripened and gathered in. In November the rate of sunshine was less than 2 hours per day; and in December it did not amount to 1 hour per day during 31 days, each of which averaged 8 hours.

[We fancy we can remember summers that were all sunshine, and winters when frost and snow could be relied on; but nowadays the months seem to have intermarried, and we find their offspring anything but agreeable.—Ed.]

BRITISH BEE-KEEPERS' ASSOCIATION.

The following circular has been issued to the members:—

March 16, 1878.

Dear Sir,—I am desired by the Acting Committee to forward to you the accompanying Balance Sheet of the Association, and to inform you that the adjourned General Meeting will be holden at the Birkbeck Institute, 29 Southampton Buildings, Chancery Lane, London, on Monday, the 25th instant, at 4 p.m., when the favour of your attendance will oblige; I have also to inform you that the amount of capital offered as subscription for the publication of a Journal was not sufficient to warrant the Committee in the accomplishment of the proposed undertaking, which is therefore on the part of the Association abandoned. At the General Meeting in December, but one Member independent of the Committee attended—this was very discouraging to the Committee as evidencing the little interest now taken in the affairs of the Association, and they desire me to remind the Members that their (the Committee) term of office has long since in due course expired, and they are anxious to be relieved of their duties and responsibilities; and they therefore earnestly beg your attendance at the adjournment in order that an entirely new executive may be appointed. In the event of this not being done, the Members present will have no option but to wind up the affairs of the Association as speedily as possible. I would also say the Association is at the present time without a Secretary, Mr. Kenworthy having resigned, and the Committee are not in a position to nominate a successor. Should you be unable to attend the adjourned General Meeting, it would be desirable that you should express by letter to me your opinion as to the desirability of the Association continuing, and that you are willing to continue your subscription.—Signed, John Hunter.

FOURTH ANNUAL BALANCE SHEET.

Statement of Receipts and Expenditure for the Year ending 31st December, 1877.

RECEIPTS.

		£	s.	d.
To Balance brought forward from last Statement—				
On account of Prize Fund	£8 14 11			
On General Account ...	16 13 4			
		25	8	3
„ Members' Subscriptions		46	1	6
„ Subscriptions to Prize Fund		8	12	6
„ Subscriptions to Tent Fund		7	19	0
„ Further amount promised ...	£7 7 0			
„ Sundries		1	18	6
		£89	19	9

EXPENDITURE.

		£	s.	d.
By Amounts properly belonging to 1876, paid this year—				
For Printing, &c.	£5 3 0			
R. K. Burt and Co. ...	1 4 4			
Medals, 1876	14 19 0			
Engraving same	1 8 0			
		22	14	4
Medals, 1877	15 6 0			
Engraving, and cases for same	3 8 0			
		18	14	0
Certificates—				
Design and 200 Lithographed		7	7	0
General Expenses of Management—				
Printing and Stationery ...	13 19 0			
Rent, Postages and Sundry Petty Disbursements ...	14 16 6			
		28	15	6
		77	10	10
Balance, Cash in hand—				
On Account of Tent Fund...	7 19 0			
On General Account ...	4 9 11			
		12	8	11
		£89	19	9

It is barely necessary to glance at the above figures, to show the absurdity of the Association continuing on its present basis. The expenses of management have been 28*l.* 15*s.* 6*d.*, while the amount 'managed' has been 18*l.* 14*s.* for medals, and 7*l.* 7*s.* for 200 lithographed certificates, a total of 26*l.* 1*s.* altogether.

BRITISH BEE-KEEPERS' ASSOCIATION.

On Monday, March 25th, the adjourned Annual Meeting of the British Bee-keepers' Association was held at the Birkbeck Institute, Southampton Buildings. The following members of the Acting Committee were present:—Messrs. Cowan, Freeman, Glennie, Henderson, Hooker, Hunter, and Minson. The Rev. H. R. Peel, Messrs. F. R. Jackson and D. Stewart, Members of the Association, were also present.

The Rev. H. R. Peel was voted to the chair. The minutes of the previous meeting were read and confirmed.

The balance-sheet was taken as read.

In reply to the request contained in the circular convening the meeting, that the Members should express their opinion as to the desirability of continuing the Association, and their willingness to continue their subscriptions, it was reported that thirty-one answers had been received, two-thirds of which advocated the continuance of the Association, and expressed the willingness of the writers still to support it.

Letters were also read from H. Jonas, Esq., of Furnival's Inn, and R. R. Godfrey, Esq., of Grantham, Lincolnshire, the former of whom advocated the continuance of the Association, adverted to the approaching meeting of the Agricultural Society, to be held in London this year, and suggested that the Association should hold their annual gathering conjointly with it. The letter of Mr. Godfrey, while considering it desirable that the Association should continue its existence, made numerous suggestions as to alterations in the rules of the society and in the composition of the Committee.

The Members present, after a lengthened discussion, passed a resolution that it was desirable to carry on the Association; and as the endeavours of the Committee to start a journal of their own had not proved successful, and as, if the society were to occupy a prominent position, it was necessary that they should have a journal advocating the interests of apiculture, it was suggested that a deputation should wait upon the Editor of the *British Bee Journal*, and confer with him as to his willingness to permit that *Journal* to be the vehicle of the Association. The Rev. H. R. Peel kindly intimated his willingness to have an interview with Mr. Abbott on an early day, and see whether the previous unpleasantnesses that had unfortunately occurred might be forgotten, and whether he would be willing to advocate the interests of that Association in the foundation of which he had taken so great an interest and in the transactions of which he had occupied so prominent a part.

The Rev. H. R. Peel (Abbott's Hill, King's Langley, Herts) consented to accept the Hon. Secretaryship of the Association, and Mr. Glennie to resume the Treasurership. The former Acting Committee who were present, namely, Messrs. Cowan, Freeman, Glennie, Henderson, Hooker, Hunter, and Minson, together with Messrs. Bartrum, Legge, Jackson, Stewart, and Brice-Wilson, were constituted the Acting Committee; and they were requested to look about for suitable and willing persons to act as Vice-Presidents, and to present the names of such at their next meeting. The meetings of the Association in future are to be held on the second Monday of each month in some central part of London.

In the present position of the Association it was not considered desirable to take advantage of the space allotted them in the approaching Paris International Exhibition.

The meeting was of a most hopeful nature; and it was evidently the desire of all present that this re-constitution of the Association, and the mission of the Rev. H. R. Peel to the Editor of the *Bee Journal*, should prove a success.

LECTURE ON BEE-KEEPING.

On Thursday, March 14, a Lecture on Bee-keeping was delivered by the Rector of Hedsor to the Working Men's Institute at Woburn, Bucks. The room was well filled, and from what we have since heard, the grocers in the neighbourhood have had to find sundry boxes which some of the audience are about converting into bar-frame hives, beginning thus to throw away for ever those straw skeps which hide so much that is interesting from our view, and cause the destruction of so many busy workers.

The Lecture was a very simple one, and consisted of a *resumé* of back numbers of the *Bee Journal*. He began by describing the different kinds of bees, the editor having most kindly lent some beautiful chromos to illustrate the lecture, it made this as well as the other parts of it far more intelligible and useful than otherwise would have been done. After this, the work of the hive for the year was described. As bees are in the very thick of pollen gathering, this was illustrated at some length, as well as the beautiful contrivance on the forefoot of the bee, for wiping the pollen from the tongue, a microscope was on the table with a fore-leg and the tongue to show the truth of the fact explained.

The value of one of the editor's remarks as to the need of winter passages was shown by the experience of the lecturer, who having neglected to make them in one of his hives, found nearly the whole hive dead, though with an ample supply of honey in the hive. On the day previous to the lecture, he had seized the opportunity of half-an-hour's sunshine, albeit a biting cold east wind, to drive out the contents of a skep, and joining these to the poor little remnant which, however, wintered with a queen who was actually laying eggs. He was able to cut out the combs of the skep, and show the various kinds of comb, position of honey, and brood, of which there was also a very little, and how to attach the comb to the frames of a bar-frame hive. After the year's work had been described, and some of the mysteries of the bee-hive, he went on to show, as far as possible, without the help of the bees themselves, the various operations now so familiar to the readers of the *Bee Journal*,—driving, swarming, transferring, and so on.

The audience seemed much interested, and from several quarters he has since heard that bar-frames are henceforward to be the order of the day. The table of the lecturer was filled with various bee contrivances; all, however, from the workshop of the editor of the *British Bee Journal*.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

BRITISH BEE-KEEPERS' ASSOCIATION.

'Honour to whom honour is due.' How then could I respond favourably to an invitation to promote the publication of a new bee journal, which must needs be a competitor with your own? I learnt my bee-keeping from you, Mr. Editor, from your personal tuition, and from your *Journal*, and so have most of the present generation of bee-keepers. A great many, like myself, knew nothing about bees before the publication of the first number of the *British Bee Journal*. We are most of us your pupils, and I for one do not hesitate with gratitude to acknowledge the *source* from which I obtained the little knowledge I possess. Which of your pupils can be so ungrateful as to propose to be the editor of the rival bee journal? And suppose the journal is started, can we expect *from the pupil* tuition which will be found superior to that of our common instructor?

It seems to me very much like the hive business. Numberless hives are brought out as the 'specialité'

of their so-called inventors, but nearly all that are worth any thing are really your own under the garb of a different shade of paint; or some slight modification in the manufacture or arrangement.

I was most pleased to take part with yourself, Mr. Symington, and a few others, in the establishment of the British Bee-keepers' Association, and had hoped that it would long have remained the parent and central society of British bee-keepers. The proposal to start a journal in rivalry to your own has proved a most suicidal policy. The fate of the Society is sealed. I believe that most of its members look to you as the father of the Association, and will not desert their parent at any time, nor do they wish to see a treacherous arrow aimed most undutifully against you. As far as I can judge, your scheme for a new Central Association is a sound one; and, as I have felt bound to withdraw from our first venture, I shall be pleased to subscribe my two guineas as a life-member.—HENRY BLIGH, *Vicarage, Abingdon, March* 25, 1878.

BEE-KEEPING IN NEW ZEALAND.

I send you below an extract from the letter of a correspondent in New Zealand, which may interest readers of your *Journal*.—J. P. JACKSON, *Bull's Mill Apiary, Hertford, March* 21, 1878.

'We have two kinds of bees here; one the ordinary kind, the other with a yellow stripe. Bees do so well here, and honey is got so easily, that no one will incur the expense of improving the breed.

'Old kerosene cases, soap-boxes, anything that will hold together, are thought good enough for hives. Last week I took a super (bar-frame) from an old kerosene case, and got 35 lbs. of first-class honey. This week I called on a neighbour, and saw fourteen supers averaging 25 lbs. each, which he has taken off this season, and without the least attention to the bees. We have no winter here: ice I have seen about the thickness of a crown-piece, but never to last more than a few hours. Snow I have not seen yet. We have flowers all the year; I had borage in the garden flowering all through the winter. I have had nasturtium flower all the winter, but this last winter we had one very sharp frost; it did not affect borage, but nasturtiums all went in one night.

'A great quantity of honey is got from the bush: I have heard of three hundredweight of honey from one tree; I have assisted when we have taken three pails full of good honeycomb (filled) from a tree. I know of "bee-trees" now in the bush, but not worth the labour of taking, because the trees are so large that a man would not chop one down in a day. I have not heard of sulphur being used here. The plan is, as soon as a tree is down, or a hive to be taken, make a fire a few yards to windward, and make as much smoke as possible. In the case of a tree take all the honey; the bees generally take refuge in a neighbouring tree like a swarm, and find another habitation next day. In the case of a hive, if a super, take it; if only a box, take half the honey. We have no means here for saving the comb to be refilled. The comb here is much thinner and lighter than the comb I have seen in England; it is generally thrown away, as there is not a market for it at a remunerative price.'—*Dec.* 27, 1877.

BEES DYING.—It is a mistake to suppose that bees die because 'a *member* of the family has died.' The unwished-for result is usually brought about because 'a *fool* in the family' has been allowed to live.

THE BEE JOURNAL.

Having the *Journal* for the past two years, and thinking of having them both bound in one volume, I find that to have the whole of the useful and practical information included, I must have a lot of (I may say useless) advertisements, bound in with them, and knowing how much our worthy Editor has his subscribers' interest at heart, I venture to suggest whether there might not be a slight improvement made in the arrangement of the forthcoming volume, so that all the useful may be bound together without having to include (the then) useless print, so that the whole may read more like a book, and thereby economizing space, like our favourites do. Of course I only offer the above as a suggestion.—W. T. J., *Farnborough, Hants.*

[Opinions vary in respect of the above, and we are inclined to think that all advertisements on bees should be printed once at least in the body of the *Journal*, for in many instances they are most valuable for reference, and are often the only record of useful inventions.—ED.]

PASTURAGE FOR BEES.—No. VIII.

(*Continued from p.* 200.)

The linden or bass-wood is extolled above all other trees or plants in America for both quantity and quality of honey. A. J. Root says, 'I placed one of my hives on a spring scale with a dial like a clock, to mark the weight, at six a.m., and at seven o'clock they had gained six ounces; from seven to eight, six ounces; from eight to nine, thirteen ounces; from nine to ten, fifteen ounces; and after that twelve ounces per hour, until three o'clock p.m.; and then fourteen ounces between three and four; then twelve ounces again between four and five and five and six; from six to seven, nine ounces; and three ounces only between seven and eight p.m. Total 150 ounces registered, and some they collected before six a.m., so I am convinced they collected ten pounds that day; and I feel sure that my sixty-five stocks averaged as much as 650 pounds for one day's work.'

E. Gallup says,—'Bass-wood is the greatest honey-producing blossom that I am acquainted with. A swarm that I put into an empty hive built their combs, stored and sealed up fifty pounds of surplus honey in five days.'

The following are some of the varieties of the American linden that produced the enormous weight of honey recorded above. The common names of this tree are *bass-wood, white wood, tin, linden, lime-tree, black lime-tree*, and *smooth-leaved lime-tree.*

1. *Tilia Americana.*—This is generally considered one of our finest forest trees, and is principally confined to the Northern States and Canada, where it frequently grows to the height of ninety feet, and four or five feet in diameter. The leaves are three to four inches wide, the bark on young shoots dark brown. The flowers appear in June, and are about half an inch in diameter, the bunches (or cymes) being compounded of from twelve to twenty, are pendulous and on stems (*peduncles*) four to six inches long, attached to a floral leaf (*bractea*), which is long and narrow. The seed-pod

ripens in September and October, is about the size of a buckshot, is covered with a short, grey down, and usually contains but one seed.

2. *Tilia Americana laxiflora* (the loose cymed-flowered American lime-tree).—This is a smaller tree than the former, seldom attaining a height of over fifty feet, and grows near the sea-coast from Maryland to Georgia. It greatly resembles *Tilia Americana*, except in size and geography. It flowers from May to July.

3. *Tilia Americana Pubescens* (or downy-leaved lin) is a smaller variety than either of the former, seldom growing more than forty feet high. The colour of the bark is darker and the twigs more slender. The leaves are smaller; in dry, open places often not more than two inches wide; in rich, shady places sometimes they are three to four inches in diameter. The leaves when they first expand are covered with a down (*pubescent*) on the under side. As they grow, a part of the down falls off, and what remains is in tufts or patches. It flowers in May and June. The flowers are more numerous and form larger bunches than the other varieties. The seed-pod is globose and downy. It belongs to the southern portion of the United States, from Kentucky to Florida and Texas.

4. *Tilia Americana Pubescens Leptophylla* (thin-leaved downy lime-tree).—This variety has the same geography as the last, and is represented to differ from it only in having thinner leaves with few serratures.

5. *Tilia Americana Alba* (white-leaved linden) equals in size of tree the *Tilia Americana* first described, on the Ohio river frequently attaining a height of eighty to one hundred feet. The young shoots have a silvery-grey bark with a rough surface, are thick, and have on them in winter very large buds. The leaves are larger than on any other variety, being often eight inches in diameter, are dark green on the upper side and whitish beneath, with small tufts of down at the intersections of the principal nerves. The flowers are also larger than those of any other linden, and are white without the yellowish tinge of the other varieties. It blooms in June; the seed-pods are globose, downy, and have five ribs. The wood is whiter and more tender than the others. This tree belongs to the central portion of the United States, not extending farther east than the river Delaware, but as far west as Kentucky, north into Pennsylvania, Ohio, and Indiana, and south to Georgia and South Carolina.

6. *Tilia Americana Alba Glabra* (smooth-fruited white-leaved linden) differs from the last in having purplish-coloured twigs, a yellow tinge to the flowers, and in the seed-pods being destitute of ribs. It inhabits the same district of country.

7. *Tilia Americana Alba Pendula* (white-leaved weeping linden) is a sub-variety of *Tilia Americana Alba*, with very large leaves and slender drooping shoots. It is only to be found in the nurseries among cultivated ornamental trees.

I have now described all the varieties of the linden trees that produce much honey.—WILLIAM CARR, *Newton Heath Apiary, near Manchester.*

(To be continued.)

THE ORDER OF THE BEE.

I extract the following from an old magazine:—

'In the Chateau de Sceaux, built by Colbert, which was destroyed in the French Revolution all but its orangery and a small part of the park, in which are held the village *fêtes* known as *les bals de sceaux*, that, among other pastimes, rendering it an abode of never-tiring pleasure and a cheerful retreat, was the institution (in the year 1703) of the *Order of the Bee*. The medal of this Order, which was of gold, weighed fourteen grammes sixty-three centigrammes. It represented the head of the Duchesse du Maine, its foundress, with this legend: 'L. Bar. D. S. C. D. P. D. L. O. D. L. M. A. M.' Louise Baron. de Sceaux, Perpetual Head of the Order of the Bee. On the reverse of the medal a bee is winging its way to a hive, with the following inscription, in allusion probably to the Duchesse du Maine's diminutive stature: 'Piccola si, ma fa gravi le ferite:' Though small, capable of wounding deeply.

The oath administered to the members of this Order ran thus: 'I swear by the honey of Hymettus to be faithful and obedient to the foundress of this Order, to wear all my life its medal, to adhere as long as I live to all its statutes; and should I ever turn recreant to my oath, may the honey be turned into gall, the wax into tallow, the flowers into thistles, and may I be stung to death by bees and hornets.'

The Order of the Bee is akin to the subject we are all so very much interested in, viz. the honey bee. What a merry party it must have been in the grand old Chateau! I can imagine the merry laugh and capers cut during the revels at the institution of the Order, by the ladies paying court to the Duchesse. Our hope is that the honey did not turn into gall while taking their fill of pleasure. —D. G.

THE STEWARTON HIVE.

In reply to sundry inquiries made by one of your readers in Berkhampstead, I beg to state that all my Stewarton stock boxes are made with four central frames.

It is best to remove supers as soon as is convenient after they are completed.

As far as feeding is concerned, one of my Stewartons has a feeding-trough sunk into the floor-board, which is convenient, as the bees can be fed without disturbing their outside wrappings. I, nevertheless, usually feed all my hives at the top. In November all the slides are withdrawn, and a piece of carpet, with a small aperture near the centre, is tacked over the top of the hive; this opening is usually closed with a small piece of loose carpet, and two or three extra thicknesses of some warm material are put loosely over the hive. When feeding is deemed expedient, the loose covering is removed, and a small flat block of wood, with a hole in the middle, is put over the aperture in the centre of the under carpet, and a bottle-feeder inverted over the block. The loose pieces of carpet are then put over the feeder to keep all warm and snug.

My feeders are of a particular pattern, made in accordance with instructions given to a glass manufacturer, and hold about a quart. When slow feeding is desirable, I tie a piece of vegetable parchment (such as is used for bottled fruit) over the mouth of the feeder, and pierce it with one, two, three, or more holes, with a large pin, and thus regulate the supply of food according to circumstances.

All my stocks, save one, are placed upon square floor-boards (as square outer covers are easy to make, and octagon ones are very difficult), with the upper edge bevelled off all round, about 18½ inches square. Square frames or boxes, without either top or bottom, are put over the hives, and rest upon the bevelled edge of the floor-board, leaving an interval between the hive and the outer cover. A loose top, resembling the gable of a house, fits upon the outer case, and keeps out the weather, but allows the damp from the interior, after it has passed through the carpet, to escape freely into the external atmosphere.

No amount of accommodation will always prevent swarming. When honey is abundant, if the bees take well to their supers, and are supplied with plenty of room both above and below, they will seldom attempt to swarm, if shaded from the fierce rays of the sun. When the weather is unsettled, so that the bees are unable to work steadily, and there is only sufficient honey to keep them partially employed, they are apt to swarm with most ample accommodation. Last summer I had two Stewarton hives, apparently equally strong, and treated in exactly the same way. One gave me 63 lbs. of super honey, and had a fair stock left for its own consumption. The other most obstinately declined to work, either in its supers; or, strange to say, in a box placed underneath, and with ample accommodation above and below, persisted in swarming. The swarms were returned, but I only obtained a little more than 20 lbs. of honey.

For full instructions for working Stewarton hives, I beg to refer your reader to *The British Bee Journal* for November, 1877, page 126, which he will probably be able to borrow from one of his neighbours, if unable to procure a copy for himself. —J. E. Briscoe, *Albrighton, Wolverhampton, March* 14, 1878.

IMPROVEMENT IN BAR FRAMES.

By your remarks at the foot of my letter in your last issue of 'Our' *Journal*, you will, I fear, lead your readers to believe that my improvement was intended for the top bars of frames. Now, if you will kindly again read my letter, you will see, I speak only of the side bars of the frames, crushing bees against the rail, or zinc runner, on taking out or putting a frame into the hive; and it is to the side bars only my improvement really applies. I quite agree with you, the V shape for the top bar is worse than useless, and that for all practical purposes your broad-shouldered top bars are nearer perfection than anything yet introduced.—Chas. H. Edwards, *March* 1878.

[Our correspondent appears to have ignored the fact that, in addition to the broad shoulders, the Standard Frame is itself in the form of the upper half of a V, and the inside of the hive of a corresponding shape. Thus when being raised the action is pretty much like lifting one flower-pot out of another; every inch that is raised takes the one further from the inside of the other, and friction (or 'crushing') can only be the result of great carelessness.—Ed.]

THE IFIELD BEE-HIVE.

This hive has been lately very much improved in exterior as well as interior workmanship and materials. It has been reduced in size from twelve frames to ten frames, the former size being considered too big. The inside measure of this hive is now 15 by 16. Two of the glass windows let down, so as to allow any body to take out any obstacle in the hive which you may wish to remove without displacing the frames. The floor-board runs in a groove, which is held in its place by two thumb-screws underneath, which can be removed at pleasure, and the floor-board can be removed from the hive. In place of the iron wire is a steel chain, which is much neater in appearance, and also much more convenient.—R. C. Blaker, *Ifield Vicarage, Crawley, Sussex.*

ABBOTT'S NORTHERN STANDARD HIVE.

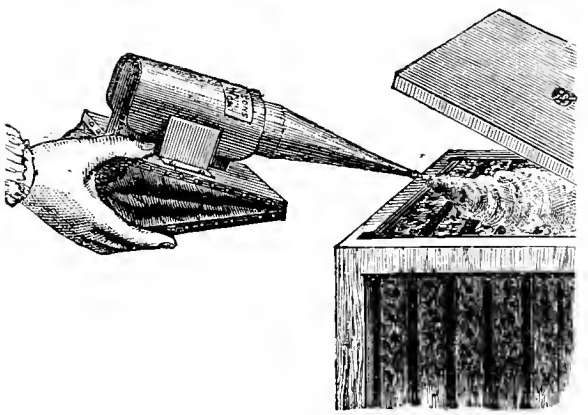
The hive bearing the above title is a reproduction of Abbott's celebrated Prize Hive, containing all its well-known principles and advantages, with the addition of others, which it is hoped will merit favour: being additions which do not alter the character of the hive, but greatly add to its convenience, by adapting it to the requirements of our northern districts; in which, owing to variableness of climate, it has been found that the 'doubling system' yields the larger profit. 'The best of hives' is, therefore, by removing the floor-board, and a light frame, which is screwed to bottom of stock-box, easily adapted to the 'doubling system,' every hive being made to use, either as super or stock-box, and rest closely on the frames of any other of its kind, the junction being concealed by the three plinths, which are fixed on the base of hive sides, and the fourth which is sent to screw on front; a ¼-in. space is left between the frames of upper and lower hive, to prevent bee crushing, when the super frames are replaced after extracting. The whole rests on a separate framed stand for greater convenience in working; the roof is hinged, locked, and has a rack fixed inside, on which several frames may be suspended when making an examination of stock; the hive is made of best yellow pine, and constructed in the best style of workmanship, ensuring accuracy in every part, planed inside and out, provided with a quilt at 32*s.* 6*d.*

The Amateur's Standard is, like the above, adapted to the 'doubling system,' with the advantage of taper frames, the front and back being 1 in. at top, and 1⅜ in. at bottom, thus allowing the sides to be perpendicular outside, having plinths round as before, containing ten frames, reversible floor-board, one dummy, and large roof like the previous hive, the frames and exterior of hive are neatly

planed, the whole constructed of best yellow pine, all being neatly dovetailed at angles, provided with quilt, being a substantial and thoroughly practical hive at 22*s.* 6*d.*; if with legs, 24*s.* 6*d.*

The Cottager's Hive is of 1 in. deal planed, contains eight taper frames, one dummy, and an ample roof for sectional supers at 9*s.* Abbott's hives and appliances, &c., furnished. (See advertisement.)—C. W. LISTER, *Kirkburton.*

NEIGHBOUR'S NEW SAFETY BELLOWS SMOKER.



Having, as I think, greatly improved on all other bellows smokers by placing a guard or casing of tin with air space between, over the tube that becomes hot, thus preventing the liability of burning the operator's hand, as is the case with the American smokers when incautiously laid hold of, and having myself found this apparatus most effective and convenient, I beg to introduce the same to the notice of apiarians.

This smoker will burn decayed wood, tobacco, or rags, in fact anything that will smoulder and emit smoke. The draft of air is so perfect that the fuel is kept alight. In order to catch the draft, the smoker should be set down on end when not in use, so as to be ready when required.

Every bee-keeper knows the value of being able at the moment to control his bees by giving them a puff of smoke, but the difficulty has been to have the smoke at hand. Apparatus intended for this purpose is so liable to allow the fire to go out, perhaps just when most wanted. All this is entirely obviated with the present contrivance, which will be found extremely serviceable to manipulators, doubly so to non-smoking ones.—ALFRED NEIGHBOUR.

BEE MANIPULATION.

The busy hum of the bees on sunny days causes us to indulge in bright anticipations of glorious summer and full supers. To that end it is wise to prepare; and if any one lacks wisdom we are encouraged to come to the Editor, but I almost feel a schoolboy's dread of editorial censure, as I must confess that I have not been very orthodox in bee-management. I have seventeen stocks in bar-hives on the Woodbury pattern, but owing to a mixture of ignorance and negligence in the past, I have allowed the bees to build crooked combs, so that I cannot carry out in practice the interesting teaching on bee manipulation wherewith your pages abound; but, nevertheless, I come before you in a teachable spirit, confessing my past errors, and resolving to rectify and avoid them in the future; and if, by your good counsel, I am put into a way to obviate the difficulties with which I have had to contend,—

> 'I will applaud you to the very echo that shall applaud again.'

I have been very much annoyed by the bees deserting unfinished supers and swarming out; I have sometimes returned them to the hive, but generally to see them issue again in a day or two. Now when such a case occurs again, if I capture the queen before returning them, will that prevent them swarming again? How do you capture a queen out of a swarm? In returning the bees, do you shake them on a cloth at the mouth of the hive, or put them into the super at the top? I have also been disappointed to find my earliest supers, the contents to be one half brood, although I use wooden adapters with slits 3-16ths of an inch wide; please state the *reason why* you recommend on page 206 of *Journal* for March the slits in adapting boards to be not less than ¼ of an inch wide, seeing that the queen and drones will get through a 3-16th of an inch slit.

By inserting the answers to these queries in the April number of *Bee Journal*, you will oblige—J. FOSTER.

[Capturing the queen of a hive that has *prepared to swarm* will probably delay swarming for a few days only, because, having prepared for the grand exodus, queen-cells will be maturing in the hive, and a young queen will be almost certain to hatch out, and lead off the bulk of the dissatisfied population. The prevention of swarming is one of the great difficulties with which bee-keepers have to contend, because the swarming mania, if the wandering instinct may be so called, is not subject to any recognised law. We find the best preventive of swarming to consist in cutting out all the queen-cells, and encaging the queen for a few days until the mania, or the cause of it, has passed away. With queen-cells destroyed and queen imprisoned, swarming can be prevented for nine days at the lowest computation; and during that time, unless the weather becomes unpropitious, the supers will be finished, or, should it be uncamie, the swarming idea will have been obliterated. To capture a queen it is only necessary to tumble the bees into a skep or pail, and roll them over and about until her majesty is discovered, when she should be seized with the finger and thumb, and placed in a cage.

In returning bees when it is intended to return the queen also, we catch the queen as aforesaid, and, placing her on the alighting-board, we throw the main body of the bees on or about the hive, and let them run in at their leisure. Forcing a swarm to enter a full hive is attended with some danger, because the bees composing the swarm being already gorged with honey might generate sufficient heat to cause the destruction of the combs. In alluding to wooden adapting-boards we were not treating of queen or drone preventers. Wood is seriously liable to expansion and contraction, and we have known the whole of the bees in a super to be destroyed from being

unable to get through a three-sixteenth inch adapter which had contracted a little. If you refer to the paragraph again, you will find we gave the option of the queen-and-drone preventing zinc. In practice, we do not use a preventive intermediary, but rely on having given sufficient breeding space in the stock hive as a safer means of keeping queens from the supers; and as regards drones we have never found that they do any harm there.—Ed. B. B. J.]

THE STING OF BEES A REMEDY FOR RHEUMATISM.

The *Praeger Landwirthschaftliches Wochenblatt* contains the following in regard to the cure of rheumatism by the means of bee-stings. The correspondent says:—'That his wife having suffered so much as to be unable to enjoy any sleep or rest for the space of six months, the right arm being almost lame, preventing the sufferer from doing any household work, making her unable even to dress or undress herself, and having heard that a farmer, quite incapacitated by rheumatism, had been accidentally stung by bees, and thereby got entirely cured, he persuaded his wife to try this remedy, as the pain from the sting of the bees would not be greater than that already suffered. Three bees were therefore laid and pressed upon the right arm for a considerable time, in order that the poison-bladder of the insects should entirely empty itself. The effect produced was astonishing, as the lady, even on the first night, was enabled to enjoy a long, good sleep, the first time for at least six months, the racking pain being entirely gone. The arm was, of course, swollen greatly in consequence of the stings, but the swelling disappeared gradually upon the application of some cooling lotion. All pain was gone, the lame arm recovered its previous vigorousness, and not the least sign of rheumatism has since shown itself.'

[Note.—The sting of a bee was recommended long ago by the Rev. J. Lawson Sisson, of Edingthorpe Rectory, North Walsham, as a remedy for rheumatism, he having found the good effect of it on himself at the first Grantham Exhibition, where he was accidentally stung on the right knee. At that time the limb was stiff and painful with rheumatism, but the sting acted like a charm, and the disease was cured at once and the pain relieved. The revered rector has since then suffered much from rheumatism of the right arm, but apparently fears the remedy more than the disease, for he has not tried the three bees as recommended in the above extract. If the sting-poison of bees is a preventive of, as well as a remedy for, the racking disease in question, we feel quite fortified against it, having been stung so often as to have almost acquired a liking for the sensation produced. How the subcutaneous injection of the sting-poison acts on the system, in regard to rheumatism, it is not our province to determine. The sight of an approaching mad bull has been known to instantly restore the use of limbs which moved only with crutched aid, and it is possible that the shock caused by a few bee-stings may make the muscles resume their activity, and force the glands to give forth their proper secretions. The sudden receipt of a sting is undoubtedly a great cause for activity, and we have often seen men run at the sound of an angry buzz only who were before scarcely able to walk, so our readers may depend that a bee-sting has great power when properly applied.—Ed.]

QUEEN PIPING.

Thinking the following may interest you, and if you think it worth publishing in your *Journal*, please do so. I was examining my hives on a fine day last week and had come to the last, when my smoker had burnt out, and as it was beginning to get a little chilly, I opened the hive without using smoke. When I had examined half the frames the queen began to pipe, and went on doing so for some little time. My wife was standing by at the time and distinctly heard her. We have both heard queens pipe before casts have left hives, and as the noise is so peculiar, and so unlike any other noise made by bees, there could be no mistake about it. The hive was a swarm of last year's, with a cast added to it; it had wintered well, and had sealed worker brood in it.

Last year was a most miserable one for bee-keepers. Bees kept on the old plan did not swarm at all, and a great many hives of bees died outright. There never was such a wet and cold season to call itself summer. If we had not had three weeks' fine when the heather was out in September, it would indeed have been a black look-out. My bees got me nearly 2 cwt. of honey during that time, and I am glad to say have all wintered well. The bees are the common kind.—W. Conway Preston, *Achonachie Lodge, Beauly, N.B., March 23, 1878.*

AN AFTERNOON AMONG THE BEES.

About a fortnight ago, I heard of a person wanting some one to get the bees out of the roof of the house. So on Saturday night I went about four miles to the house, and having obtained a ladder, I went up to the roof, and as the evening was mild, I saw one or two bees go in under the tiles; so I took off a few tiles, and pulled out some pieces of empty comb, but on rapping I could hear a good loud buzz from the main body of the bees. I went down and arranged with the landlady to go over and get them out the first opportunity I could get; and it so happened that I could spare the afternoon on the following Monday. I took a person with me to help carry a straw skep and a box, to hold about six frames. We arrived there about 3 o'clock, and I, with the aid of the ladder, went up on to the roof and pulled off a few tiles, and out came the bees, a lot of them, pell-mell; but I took no notice of them, as I had a veil on. I put my knife through the ceiling, as I could see the bulk of the bees were under a lead gutter; so I went down into the bed-room, and looked where my knife had come through, and then took out a piece of the ceiling, and exposed the bees to view. I gave them a dose of smoke, and cut the combs, one by one, sweeping the bees into the box-hive, and putting what honey there was into the straw skep. When I came to the brood, I fitted the combs into frames, and there was enough to fill four of them, then I put them into the box-hive, and put all the bees I could into it, at the same time, keeping a good look out for the queen, but did not find her till last, among a bunch of bees that had fallen on the floor. In the meantime, the landlady was rather anxious to see what we

were doing, but when there was a bee or two flying near, she began to be afraid, and soon retreated. The combs were 14½ inches long, and some 13 inches deep. I do not think at the time that I had any frames so full of brood in my stocks, as there was in this stock of pure English bees, and they had had no stimulative feeding at all, only what they had fed from their own stores, of which they had plenty. They had extended their combs between the rafters on either side of the main rafters where the bulk of the bees were; and when we were taking those combs out, I called them the supers. There was no upward ventilation, as it was an inch board, about 11 inches wide, that the combs were attached to, so all dampness had to be fanned upward, outside the edge of the board, there were no mouldy combs either. We got them into the hive nicely, and I carried them home, where they are doing well, as far as the weather will allow them. I have put them into a full size hive, and given them some spare combs, so that they have room to breed, and they do go to work with vigour when they can get a chance. It was rather amusing to hear the landlady say how the bees had annoyed her in the summer previous; likewise persons visiting there, saying they were always watching to get a chance to sting one or other of them. I think I got on pretty well, having only about fifteen stings on my hands. When I was cutting the combs out I found the large cranked honey-knife that I had from Messrs. Abbott, first-rate for the job.—A Warwickshire Bee-keeper, *Honey Cott, Weston, Leamington, March*, 1878.

ADAPTOR-ZINC.

I should like to see in *Journal* the results of the endeavours of bee-keepers to keep the drones from supers. I have tried several sizes of perforated zinc, but if small enough to keep the drones back it prevents the bees removing their dead. I think long slots each side preferable to perforated zinc, and there is less loss of heat, but still the queen may enter; but *if* she frequently does so is what I should like to know from those experienced. My bees were not sufficiently prosperous last year to try experiments, but I am in hopes of a better season this year.—W. G., *Hay, R. S. O., February* 27, 1878.

BEES IN LINCOLNSHIRE.

Throughout this district the last season was anything but encouraging to beginners in bee-keeping—and there were many—whilst to old hands it was a damper; now, as was to be feared would be the case after such an unfavourable season, comes the sad fact of stocks having died during the winter. I took a walk round to see some brother members and their stocks, as I intimated to you I should do when I sent for the Leaflets for distribution; and I regret to state not only that a number of stocks have been lost, but I find many so weak that there appear but small hopes of their being saved. Here we are at the end of February, sun bright, weather warm, our bees enticed out, and as lively as in the month of April, but no natural food for them. Finding some of my stocks short of store, I resolved at a venture, to treat all to a 'picnic,' first having prepared a supply of syrup; I then took several frames of empty comb, filled them with the syrup, and placed them in a shady nook, and it was delightful to see how my little friends enjoyed the fun, and how quickly they cleared the board, which I as often replenished. I kept a sharp look out, but saw no fighting or robbing.—R. R. Godfrey, *Grantham, February* 23.

THE SEASON.—BORAGE.

I am pleased to say all my hives (except one bought a few days since) appear in fine condition, and are very busy on fine days. I counted between thirty and forty go in pollen-laden at one hive in one minute, which at this time of the year I should think a good number. Do you know if frost will kill borage? as I had some seeds take root last autumn, and now they are just coming out in bloom; I should think if severe frosts would not hurt them they would make valuable early bee-flowers.

My bees have been indulging in the 'big sun flower' to their heart's content, and are at present safe under quilt and sawdust blanket.—W. T. Joyce, *Farnborough, Hants, March* 12*th*, 1878.

[Severe frost will kill borage plants, and this fact would render it a very casualty crop for spring bee-keeping.—Ed.]

A ROOM FOR BEES—COMB FOUNDATIONS.

I have an idea to build a good-sized room, say 20 feet by 12 feet, and leave the south side open for glass, at least 12 feet of it, and store my hives round the sides, so that they will have a complete shelter, and by placing the glass in, say once in three days in winter, will enable them to indulge in a flight when the weather is bad, also this means will avoid damp by being in a dry room. What do you think of the idea?) I have ordered a small quantity of comb-foundation from Mr. Raitt, and as a contribution to practical work will just say that a cement of equal parts of glue and wax melted together, is capital for glueing combs to bar-frames, and keeps moist for some time when treated. Bees did badly here last year. This season, if time permits, I will give an evening entertainment or two on bees, which will be something fresh in our district. No bar-frames here, but our own, that I am aware of. If any bee-keepers live in the district who use hives on the new principle, I should like to meet them. I see a contributor, from Darlington, in fact, would like to meet any person in the district, to exchange notes, and so, if you know any who are willing, I should be glad if you will kindly introduce by exchange of addresses.—T. W. Crisp, *Stockton-on Tees.*

[A number of stocks of bees put into such a house, and suffered to fly in confinement as suggested, would probably come to grief, for they would fly against the glass until tired, and would fall to the floor, and get so mixed as to lose their identity, and getting into wrong hives, the destruction of both queens and subjects would almost certainly ensue. Being in a dry room will not avoid damp, as the bees themselves generate moisture, as

humans do by breathing, *i. e.* they destroy the oxygen in the air, and give off aqueous vapour, which condensing, becomes water. We might offend by giving the addresses of our correspondents, and subscribers, but we willingly publish your address and request, that those who wish may effect an introduction.—Ed.]

A NEW FEEDER.

I send you a rough description of feeder (which perhaps is not new to you). It consists of turned wooden cups bottomless, in shape like a tumbler, with the bottom out. I prefer wood, as it is all in 'my way,' and the acid and salt tend to rust feeders made of tin, and I don't know if the *iron without the quinine* strengthens the bees. In the wooden cup I wrap a piece of clean white wool (not wadding) in a piece of fine muslin, and force it in so as to show from the smallest part (or bottom) in form, like the half of an orange, pour in the syrup, and if left a while it will gently 'sweat' through the wool and muslin, and act as a filter and gentle feeder: it is inexpensive, and will answer the purpose well.—David Ling, *Rochford, March* 12, 1878.

Management of Bees.—Dr. de Beauvoys has just made known to the French Société d'Acclimatation a new method for taking the honey from bees, without recourse to the cruel practice of stifling them. The plan adopted is to subject the hives to the vapour of flax dipped in salts of nitre, which acts as a powerful narcotic, depriving the bees temporarily of the power of movement, but not destroying them.

Echoes from the Hives.

Tyler's Green, Penn, Bucks, March 1*st*, 1878.—'As a compliment to yourself (as I really do not care to belong to any association), you may enrol me as a subscriber to *your* Association.'—T. J. R.

Ifield Vicarage, Crawley, Sussex, March 6*th*, 1878.—'My bees are going on very nicely; I hope yours are. I killed a queen-wasp on the 1st of this month on the laurustinus.'—R. C. B.

York.—'I have to-day returned your set of chromos kindly lent for my lecture on "Bees." I like your hive very much, and later in the year, when I go south, I hope to have the pleasure of calling on you.'

Stroud.—'I had a handful of bees, a second swarm from a good hive in June last. I put it into an old skep with some old black comb in it, and fed it up; it is now by far the best and most promising hive I have; the bees even now cluster about the entrance when the sun is very bright and the day warm. I mean to put a super on it very soon.'—M. B.

Sleaford.—'It is very mild to-day at Sleaford, but rather windy. The bees are very busy amongst the crocuses and are getting farina. I have opened two bar-frame hives, and find the bees are clustering in the four bars from the light side the hive.—J. M.

Ilkley, Leeds.—'There is sad havoc amongst bees this spring. A friend has lost his five hives; his neighbour across the way lost all his three; another not far off, three Woodburys; another, one of his Woodburys; and the writer, out of four, one Stewarton. What is remarkable, I believe in nearly all there was food both sealed and opened. I heard of another yesterday, who had given up bee-keeping in disgust at his losses.'—W. C.

Fife.—'My bees have wintered well; I have had no total loss as yet, and some of them have been carrying pollen. I had one hive where the bees had been clustering at one side of the hive, and when I examined them I found that the bees in the first frame were all dead, although there was plenty of sealed honey and four seams of bees, all quite lively. The hive was double-walled and wrapped up with straw the same as my other hives; the only thing that I could see wrong was the floor-board was hardly so tight up as it might have been at the side where the dead bees were. It would be about 1-16th of an inch from being close; don't you think it would be safer to shift them when they cluster at the sides before winter come, to about the centre, where they would be perfectly dry. You might give me your opinion and oblige.—J. W.'

[The crevice between the floor-board and the hive could scarcely have been the cause of the death of the bees between the first comb and the hive wall, and it is not easy to suggest a cause for their loss, while so large a proportion of bees survived. Undoubtedly, the centre of the hive between the combs is the best and safest position for the cluster, provided means have been adopted to prevent the escape of heat round or over the frames. The quilt rightly applied is the best preventive of loss of the ascending heat, and a few sticks to slide down between the frame-ends and prevent the circulation of air around them would prevent loss in that direction. In our opinion empty combs are the best preventions of loss of heat by convection, the wax itself being non-conducting, and its form making every cell a repository of dead air, which is acknowledged to be the best non-conductor known.—Ed.]

Bishops Stortford.—'I have been too much occupied to see to my bees, but to-day they are carrying in pollen fast. Two or three of the late swarm I find require feeding. Some are very heavy—too heavy.'

Wokingham.—'One thing and another has prevented my sending annual subscription to *British Bee Journal*. Kindly accept my apology. I regret and sympathize with you in the intrusion of two enemies—fire and death—but trust they will not damp or thwart your courage and zeal in carrying on as before Our valuable and interesting *Bee Journal*. Health and happiness in the work is my sincere wish for you during the ensuing year.'—J. G.

'I am sorry that I have neglected to write to you sooner, but please put down my name for a life member to your new Association. I certainly say *ditto* to Dr. Pine's letter, in spite of your explanatory note.'—Fredk. H. Lemare.

Queries and Replies.

Query No. 231.—Kindly inform me of (1) the best means of affixing a nadir to the Cottagers' Standard.—*Reply.* Lift the hive from its floor-board, and place the nadir beneath it; no fixing will be necessary.

2. The best time to affix it.—*Reply.* When the stock hive is filled with comb, and bees and brood are abundant.

3. How long from the time they are put into the hive before they are admitted to the nadir?—*Reply.* Ditto.

4. Should the nadir be ventilated?—*Reply.* Not necessarily if the quilt be used.

5. The best means to ventilate it.—*Reply.* The bees will ventilate it when necessary.

6. How to prevent queen and drones entering nadir?—*Reply.* This cannot be absolutely guaranteed since drones and queens vary in size respectively. Our article on Adaptors in this *Journal* may be of service to you.

7. Is it a good plan instead of storifying to use a super and nadir at the same time?—*Reply.* Supering and nadiring are the essence of the storifying system. See the article on the Stewarton Hive and system, by 'The Renfrewshire Bee-keeper,' page 126 in present volume of *British Bee Journal.*

QUERY No. 232.—CONTROLLING FERTILIZATION.—Would you please tell us in your next month's *Journal,* how queens are fertilised in confinement, as I wish to experiment upon it?—ISAAC WILDMAN, *Stanbury, March* 13, 1878.

REPLY TO QUERY No. 232.—We should be very glad to impart the information desired if we were in possession of the knowledge, but at present no method has been discovered that is nearly certain in its results. There are many difficulties in the way of success, not the least being that of ascertaining when the young queen is ready for her so-called wedding trip. Many are engaged in experimenting on the subject, and doubtless a method will be discovered by which fertilization can be controlled, and bees bred to the perfection of beauty and gentleness. We intend to try out a few notions that have suggested themselves, and hope and believe that we shall be successful, and if ever enabled to say 'Eureka' shall only be too glad to give the *modus operandi* to the world.—ED.

QUERY No. 233.—I have been recommended to apply to you in a little difficulty with my bees. Last season I only took 2 lbs. from a doubled stock of the previous autumn. My principal hive is a box 17 by 16 by 8, and is filled with comb and bees and honey. I should like to place the bees into a frame-hive with sliding floor-board and moveable top-roof; I shall use the quilt. Will you therefore kindly answer the following questions?—D. M., *Wandsworth.*

1. Is this month the time, and if not, when should it be done?—*Reply.* If the intention be to transfer the combs to the frames of a bar-frame hive, it may be done on any fine day when there is a prospect of continued fine weather. Our method would be to stimulate to increased breeding so as to get an early swarm, and with it (the swarm) stock one bar-frame hive, and twenty-one days afterwards, when all the brood has hatched out of the old combs, we would transfer them with the bees to a second bar-frame hive. (See leaflet on Transferring, one stamp at our office.)

2. Would it suffice to lift the hive and contents bodily on top of frame hive, and move old box when bees had taken possession of frame-hive?—*Reply.* There is little doubt but that the bees would in such case take possession of the frame-hive, but they would store all their surplus honey in the dirty old combs in the box.

3. Can the bees be driven safely into an empty hive now?—*Reply.* Assuredly not; the weather is too cold and unsettled for any such interference. The driven bees would dwindle away, and the brood in the old combs would perish, beside which, there being no drones, the young queen could not be fertilised.

4. Your *candid* opinion?—*Reply.* We always give it. —ED.

QUERY, No. 234.—Will you kindly answer in next month's *Journal.* One of my hives is fairly strong for bees, but they do not gather pollen, while the others get plenty. If you think the queen is dead, please advise me also, do you approve of strips of glass between the super bars? Also, your opinion of adapting board. The season here is forward, hoping it will be better than last year.—J. PENNY, JUN., *Hants.*

REPLY to QUERY, No. 234.—It may fairly be concluded that the idle bees are queenless, or they would surely be gathering pollen proportionately with those of the neighbouring hives.

The best thing to do at this season is to unite them with another stock near by, caging the queen of those to which they are to be added for two days. Drive all the bees out of both hives, sprinkle them with scented syrup, and mix them together in one hive, and when fairly quiet let them run into the hive containing the combs of brood.

If not disposed to do this, give them a comb of brood to hatch out, to keep up their numbers, and when drones are about to appear let them have a second comb from which to raise a queen.

Strips of glass between super sections or bars ensure straight combs if guides are properly fixed.

Wooden adapting-broads expand and contract, and are comparatively useless as queen-and-drone excluders, but are useful for separating the brood-nest from supers. —ED.

QUERY, No. 235.—Do you think that golden syrup or refined treacle would answer as food for bees? Possibly this question has been put before, but I should much like to have your opinion.—J. G.

REPLY to QUERY, No. 235.—Golden syrup is doubtless good for bees, but we never use it or treacle, because we find white sugar-syrup cheaper, and there is no danger in its use.—ED.

QUERY, No. 236.—TRANSFERRING—LIGURIANIZING. When can I go in for transferring? as I have five hives I wish to transfer into bar-frames. I managed two in the autumn, and it is such an easy process, and the results so satisfactory that I intend to keep nothing else but bar-frames. Would you also kindly let me know when to Ligurianize? —FARNHAM.

REPLY TO QUERY No. 236.—Twenty-one days after swarming is our favourite time for transferring, as then the combs will contain very little brood, and there can be but little injury done to them; added to which, being light, they will be more easily held in their places, while the bees fix them. It may, however, be done prior to swarming at any time when the weather appears likely to continue fine.

Ligurianizing can be done at any time when queens are procurable, probably about the middle of May. I by the introduction of queen-cells, they, of course, must first be obtained, and introduced, in lieu of the queens, to be deposed when drones are abundant; Ligurian drones if possible.'—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

IGNORAMUS (?)—You need not fear to entrust us with your questions, for although you may not frame them as you wish you could, we will undertake to gauge them for you that they shall be presentable. Write as you would speak, and there is little doubt but that you will be understood, and confidence will soon be established.

The pressure on our columns, in consequence of the insertion of the index, title, &c., obliges us reluctantly to postpone several interesting communications which are in type.

The conclusion of Vol. V. gives us an opportunity of reminding subscribers receiving the *Journal* in a pink wrapper that they are in arrears.

Covers for the volume may be had at the office, Fairlawn, Southall, price 1*s.*

THE

British Bee Journal,

AND

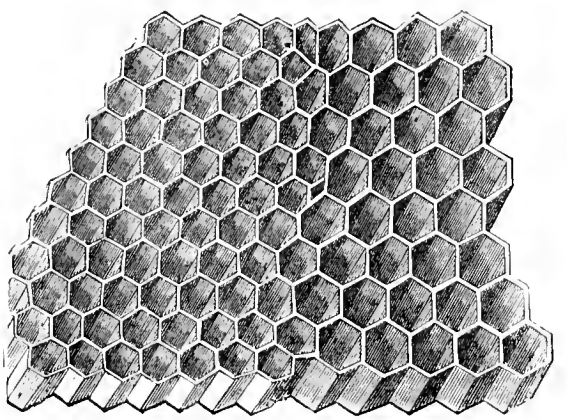
BEE-KEEPER'S ADVISER.

CONDUCTED BY

CHARLES NASH ABBOTT,
SOUTHALL.

VOLUME VI.

1878—9.



PUBLISHED AT THE OFFICE OF THE BRITISH BEE JOURNAL,
SOUTHALL, NEAR LONDON;

AND BY

KENT AND CO., 23 PATERNOSTER ROW, E.C.

INDEX.

Abbott's economic hive-stand, 6; economic entrance-slides, 6, 7; queen-and-drone excluders, 22; combination-hive, 74, 96-99, 137; method of secret mitreing, 141; new quieter and fumigator, 188; bottle-plug, *ib.*; wax-smelter, 205; specialty feeder, 207; complete apiary, *ib.*; Pettigrew-Stewarton hive, 207, 208; driver's assistant, 208
Abbott, C. N., on the bees' cell, 102; on the straw hives at Crystal Palace Shows, 163
Abbott Bros., their exhibits at the Paris Exhibition, 45; receive a silver medal, 120; visit to their apiary, 120
Adapters, mishap with, 64
Adapting-board, 55
Adulteration of honey, 201
After-swarms, 51
Alder, 226
Alsace, bee-keeping in, 157
American adulteration of honey, 191
American floating apiary, 191
American honey, an American's opinion of, 190; its qualities, 196, 204; analyses of, 161, 204, 211
American sections, 206
Ants, 76; paraffin destructive to, 10
Apiarian literature, 16, 115, 135, 175
Apiarian dinner, 17
Apiarian disaster, an, 49
Apiary, complete, 207
Apiculture, lectures on, 14, 15, 16, 106, 115, 135, 154, 169, 174
April, 221; work for, 221-22
Arabis alpinus, 18
Arbroath Annual Show of Bees, Honey, &c., 123; Horticultural Society, 213
Artificial comb-foundations, 176, 193, 231
Artificial pollen, 184, 214, 221
Artificial swarming, 19, 130
Artificial swarms, 16, 51
Association reports, 20
August, 53; work for, 53, 54
Australasia, bee-farm in, 15
Australia, bees and wax-moth in, 128
Autumn, stimulative feeding in, 71; drones in, 157
Baldenstein, Capt., the introducer of the Ligurian bee into Germany, 167
Banchory, Flower and Honey Shows at, 123
Bar-frame hive, bees selecting a, 151
Bar-frame feeder, the, 112, 127, 141
Bar-frame hives, 3; management of, 54, 55; stocking from skeps, 150
Barley-sugar, feeding-box for, 10, 96; the best winter food, 116, 204
Bartrum, Rev. E., on dairy farming, 227
Bee and honey shows, do they pay? 111
Bee and honey statistics, 196, 218
Bee-cell, shape of, correspondence respecting, 100
Bee-disorder mistaken for foul brood, 130
Bee-exhibitions, 83
Bee-farming in Dundee, 121
Bee-farm in Australasia, 15
Bee-farms, extent of, 51
Bee-flowers, 49
Bee-houses, 34
Bee-keeper's career, sad ending of a, 138
Bee-keeping, commencing, 2; lecture on, 139; letter to *The Times* on, 180
Bee-masters and their bees, 156
Bee-reminiscences in Scotland, 66
Bee-show, notes at a, 91
Bee-sting, death from a, 60
Bee-stings, cure for rheumatism, 63; effect of, 151
Bee-tent, journeyings of, 121; engagements of, 223
Bee, the busy, 173
Bee-veil, new, 87; the Parson's, 126, 181, 196
Bees, chats about, 11, 26, 62; and bee-keeping, lectures on, 14, 15, 106, 154; getting them out of straw skeps, 22; fertilising fruit-blossoms, *ib.*; in green-houses, 31; in an excited state, 32; the language of, *ib.*; effect of the irritation of, 49; milk diet for, 49, 50, 231; misled, 65; hanging outside hives, 51; and honey prospects, 66; prolific, *ib.*; swarming and not swarming, *ib.*; do they make honey? 80, 110, 131; vicious, 88; gathering honey from red clover, 89; in the City, 91; clover for, *ib.*; removing from houses, 108; pasturage for, 145; stinging gloves, 147; leaving their hives, 157; the practical domestic management of, 169; and bee-keeping, 170; products of, 172; lecture on, at Chichester, 174; and injured fruit, 180; are they dormant in winter? 183; removing, 195, 200, 220; their labour to be economised, 197; in peach-houses, *ib.*; condition of in winter, 203; and lemonade, 214; feeding, 221; taking to distant parts, 230; decamping, 231; in a peach-house, 232
Beginners, facts for, 28
Birds enemies to bees, 91
Blackberry, 229
Blacks *v.* Ligurians, 151, 175, 198, 230, 232
Blairgowrie District Bee-keepers' Society, honey show of, 123
Blind teachers, 111
Body-box, the, 55
Bottle plug, 188, 231
Bramble, 229
Brazilian bees, 127
Brett, Mr., his hive, 86
British Bee-keepers' Association, alteration in rules, 7; its arrangements for the show at South Kensington, 23, 24, 57, 69; prize fund, 24, 56; its schedule of prizes for South Kensington show, 47, 48; revised rules of the, 82, 122; journeyings of its bee-tent, 121; its great success, 139; application by the, to the Royal Agricultural Association to exhibit at Kilburn, 164, 165; fifth annual balance-sheet, 164, 187; annual general meeting, 208-212; election of office-bearers, 208; its representation at the Royal Agricultural show, 209; its formation of county associations, 210; its establishment of a honey market, 211; its quarterly meetings, 212; committee meeting, 223
Bronchitis and asthma, specific for, 10
Brood, young, 173
Burdett-Coutts, Baroness, President of British Bee-keepers' Association, 9, 23; offers Columbia Market as a honey depôt, 210
Caledonian Apiarian and Entomological Society, 7, 48, 76, 83, 104, 161, 225
California, inquiries and reports from, 127; white comb honey from, analysis of, 161
Canada, bee-keeping in, 156
Castle Howard, bees in the roof of, 60
Chaplin's combination hive, 126
Chats on bees, 11, 26, 62
Church, bees in a, 60
Cinerarias, 50
Clark, Dr., his analyses of American honey, 161, 204, 229; on glucose, 205
Collateral boxes, 4, 36
Columella on the manufacture of hives, 40
Collin, Abbé, the natural history of the bees, 171
Colston hive, 126
Combination hive, the, 106, 107, 129, 137, 138, 140; the principle of, 182
Comb, distances of drone, 18
Comb-foundation, American criticism on, 192
Comb-foundations, 148, 149, 176, 195, 234; strengthening, 217; directions for, 234
Comb, straightening, 68, 69, 92, 220
Comb, use of old, 22
Combs, moveable *v.* fixed, 2; extracting from new, 89; weight of, 114; fantastic, 134; mouldy, 219; crooked, 92, 219, 220
Coming shows, 7, 46, 59, 76
Condemned bees, 54, 72
Cori, M., the importer of Cyprian bees, 175
Cotoneaster microphylla, 229
Cottage brimstone bee-keepers self-punished, 179
County associations, formation of, 209; application of, to the British Bee-keepers' Association, 210; affixing dates to their shows, 226
Cranfield and Ifield Horticultural Association, 17
Crooked combs, 92, 219, 220
Croydon, its facilities to the apiarian, 170
Currant, 29
Cyprian bees, 127, 148, 175; value of, 175
Cyprian queens, 69, 107
Daily Telegraph on bee-keeping, 109
Dairy farming, 227
Dampness in hives, how to prevent, 72
'Dastardly act,' 30
December, 139; work for, 140
Desborough, J. G., on the bees' cell, 101
Desertion by swarms, prevention of, 88
Devon and Exeter Bee-keepers' Association, 57, 59, 80, 226
Dextrine and dextrose, 204, 205, 229
Disclaimers, 195, 208
Dixon, Hepworth, on Cyprian bees, 148
Doolittle, G. M., on comb-foundation, 192
Dorset Bee-keepers' Association, 24, 25, 59, 89
Double swarms, 194
Doubling system, the, 35, 38, 39
Drage, Mr., on the practical domestic management of bees, 169
Driver's assistant, 208
Driving, 16, 30, 93; bees into supers, 107
Drone-comb foundation, 220
Drone-slaying, 68
Drone-trap, 35; tunnel, 166
Drones, 51; hives at harvest to be examined for, 54; uses of, 65; evaporating, 114; late, 137

Dysentery to be prevented, 96, 116; through late feeding, 232, 235
Dzierzon, Dr., on the introduction of the Ligurian bee into Germany, 167; his *Rationelle Bienenzucht*, 175
Ealing, Acton, and Hanwell Horticultural Society, exhibition of bees, honey, &c., at, 48, 56
East of Scotland Bee-keepers' Society, 104, 105, 213
Echoes from the hives, 17, 33, *et passim*
Ekes, 4
Elderberry, 229
Elm, 145
England, American view of bee-keeping in, 170
Entrance-slides, 6, 7, 55
Entrances, narrowing, 222
Erith and Belvedere Natural History Society, 104
Excluder zinc, 131
Exhibitors, fraudulent, 28
Experiences, 12–14, 28, 88, 93
Extraction, the advantages of mixed, 151
Extractor, 67, 68, 92, 137
Fairlawn, Southall, visit to, 197
February, 183; work for, 184
Feeder, specialty, 207; Paterson's, 127, 147
Feeding-box for barley-sugar, 10
Fermenting food, 31
Fertilization of queens, controlling the, 21
Fifeshire, bee-keeping in, 215
Fishing-boat, swarm of bees in a, 60
Floor-board, the, 55
Foreign bogies at local shows, 133
Foreign honey, 160
Foreigners at local shows, 118
Forthcoming shows, 58
Foul brood, 69; cured, 31; danger of delay, 120
Frames placed crosswise, 75
Frames in hives, position of, 131; steadying, 220
France, progress of apiculture in, 40; production of honey in, *ib.*; number of hives in, *ib.*; Italian and Carniolian bees cultivated in, *ib.*
French apiculture, 137
Fruit-blossoms, fertilization of, 67
Fuggle, H., Eureka hive, 84, 85
Fumigation by puff-ball, chloroform, &c., 69
Gelieu, Pasteur Bernard de, death of, 194
Geographical 'bee,' 156
Germany, progress of bee-keeping in, 227
Giotto frame hives, 44
Glucose, 142, 178, 204; syrup, 177; adulteration, 229
Gooseberry, 229
Grantham, honey fair at, 124
Great Hampshire bee-farm, 201
Green-houses, bees in, 50
Griffin hive, the, 112
Guides for frames, 35; method of making, 205
Hair-cloth for quilts, 50
Hamet, M., editor of the *Apiculteur*, 40; diverse opinions respecting him as an apiculturist, 90, 103
Hasbrouck, J., on American honey, 192; on the introduction of queens, 198
Heather harvest, 54
Hertfordshire Bee-keepers' Association, 122, 189, 225
Higgins, C. L., on the bees' cell, 101
Hive, a legend of the, 174; an old, 137; removal of, from floor-board, 219
Hive-construction, 229
Hive-entrances, 116
Hive-making, 34
Hive-porches, 96
Hive-rights, 31
Hive-stand, economic, 6
Hives, bar-frame, price of, 3; Woodbury, 5; Cottage Woodbury, 6; successive improvements in, *ib.*; shades for, to be provided, 37; weak, 51; spontaneous combustion of, 100; with combs at right angles, 152; wet, 215
Holmes, Rev. E., observatory hive, 86
Honey-bee, the, 179
Honey-buzzard in the Isle of Wight, 129
Honey-cart, a, 112
Honey-combs, 171
Honey-extractor, the, 38, 39, 133
Honey-fair at Wrexham, 110
Honey-getting, 178
Honey harvest, from Stewarton hives, 87; at Tadcaster, 111; the recent, 112; a second, 38
Honey market, 195, 222
Honey, extracting, 64; spoiling, 5, 6; do bees make? 87, 110, 131; packing, 111; price of, 112; judging, 117; used for cooking purposes, 124; adulteration of, 142; large import of, from America, 124, 206; price of, in Ireland, 148; not crystallizing, 177; sale of, 181; crystallizing, 196; ripening, *ib.*; analyses of, by Dr. Clark and Dr. Redwood, 161, 204, 211, 229; American, *ib.*; adulteration of, *ib.*; old as food, 220
Horfield, bees at the harvest festival and flower show at, 165
Hot water, use of, in hives, 84
Hunter, J., letter from, on the sale of honey by the British Bee-keepers' Association, 224
Hybrid bees, 89, 156; *v.* pure bees, 113; *v.* blacks, 199
Iliffe, R., his plaster cast and dipping bath, 86
Important items, 64
Inchmarlo, bees at, 28
Ireland, bee-keeping in, 32, 132, 214; a farmer's experience, 171
Irish Bee-keepers' Association, 228
January, 159; work for, 160
Jet-black bees, 50
Journal, its teachings, 1; 'our,' 67, 181, *et passim*
Judging, hints on, 57
July, 37; work for, *ib.*
June, 19; work for, 19, 20
Kent, Bee-keepers' Association in, 165
Lacy, Rev. C., on the bees' cell, 100, 101
Lady bee-keeper, diary of, 233
Lævulose, 205
Langstroth's three rules, 16
Language of bees, 32
Layens, M. G., an advanced French apiculturist, 91
Lectures on bee-keeping, 14, 15, 16, 106, 115, 135, 139, 153, 169, 174
Ligurian bee, history of the introduction of, into England and Germany, 167
Ligurian breeding and development, 133
Ligurian depreciation, 89
Ligurian drones, 49
Ligurianizing, 29, 30
Ligurians, and their progeny, 131; *v.* blacks, 151, 175, 198, 230, 232
Limes and clover, 36
Lincolnshire Bee-keepers' Association, 8, 52, 59, 77–79, 214
Ling, David, his hive, 86
'Little Wonder,' 67, 68, 137
Liverpool, bees round, 66
London, bees in, 136
Long Sutton Agricultural Society, Lincolnshire Bee-keepers' Association at, 214
Makeshift hives, 160
March, 203; work in, 203, 204
May, 1–3; work for, 4, 5
Mead, Mr. Symington's receipt for, 121, 148
Milk diet for bees, 49, 50, 148
Mobilism *v.* fixism in France, 137
Moira bug, the, in Australia, 15 *n.*
Nadiring, 4
Nadirs, 30
Neighbour, Messrs., their exhibits at the Paris Exhibition, 45; receive a silver medal, 120
New bee book, 235
New idea, a, 84
New inventions and improvements, 119
New York Bee Association, 25
New Zealand, bee-keeping in, 216
November, 115; work for, 116
Nucleus hives, 23
Observatory hives in winter, 92
October, 95; work for, 95, 96
Old-fogeyism, 29
Osier, 228
Paraffin destructive to ants, 10
Paris Exhibition, discounting awards of, 28; progress of apiculture in France, as seen in, 40; exhibition of hives in, 41; driving apparatus in, 42; apicultural appliances in, 43; drone-trap in, *ib.*; honey and wax in, 43–46; Italian, Russian, and English exhibits in, 45, 46; English agricultural implements at, 56; editor's remarks on, reviewed, 90; the American *Bee Journal* on, 102; the editor's reviewer reviewed, 103; awards to English exhibitors at, 120; British blunder at, 141
Parson's bee-veil, 126, 181, 196
Pasturage for bees, 145, 228
Paterson's bar-frame bee-feeder, 127, 147, 178
Pea-flour, 34
Peel, Rev. H. R., Hon. Sec. of B. B. A., 9, 23, 24, 61, 208, 212, 226, *et passim*
Perforated zinc, 64
Perthshire, bee-keeping in, 109; Apiarian Society, 165
Pettigrew-Stewarton hive, 207
Pettigrewian libel, the, 129, 162
Plantations of bee-flowers, &c., 116
Polariscope, its use in discovering the adulteration of honey, 204
Pollen, 172
Pollen-carriers, 36
Poplar, 228
Preparation for work, 68, 222
Prize-winning stock, history of a, 110
Propolis, 173
Prospects of 1879, 179
Queen-and-drone excluders, 22, 64
Queen-cells, 4, 34
Queen-excluders, 108
Queenlessness, 18, 222
Queenless stocks, 4, 68, 96
Queen, loss of, 34
Queen-piping, 29, 89
Queen-raising, 23; new idea of, 150
Queen, singular caprice of a, 133
Queen stinging, 113
Queen-wasps, 4, 20, 96, 222
Queens, introduction of, 18; fertilisation of, 20; why do they pipe? 20; size of, 36; fertilization of, in confinement, 61; loss of, 88; duality of, in a hive, 91; by mail from Italy, delivery in England refused, 99; introduction, 198
Queries invited, 36
Quieter and fumigator, 188
Quilt, the, 68, 85, 184, 229

Raitt, W., Chats on bees, 11, 25, 62; his bee-farm at Beecroft, Blairgowrie, 121
Readers, to our, 1
Red clover, bees working in, 89
Redwood, Dr., his analysis of American honey, 204, 211, 223
Removing bees short distances, 119
Renfrewshire, season in, 109
Rheumatism, bee-stings cure for, 63
Robbing, how prevented, 51, 72
Rolled *v.* plaster-cast foundations, 230
Root, A. I., his *A B C of Apiculture*, 21
Rossshire, bee-keeping in, 215
Royal Horticultural Gardens, South Kensington, Exhibition of the Bee-keepers' Association at, 58, 59
Salicylic acid, 114
Sartori, M., his exhibits of honey, &c., at the Paris Exhibition, 45
Sawdust quilt, 68
Schmidt, M., death of, 194
Scotland, bees in the black country of, 132
Season of 1877-78, 9, 10
Secret mitreing, Abbott's method of, 111
Sectional supers, 54, 158, 206, 222
September, 71; work for, 71, 72
Sevenoaks, Kent, bee show at, 56
Shows, notes by the way on, 103
Shropshire Bee-keepers' Association, 59, 106
Simmins, S., divisional hive, 85
Skeps and bar-frame hives, lecture on, 16, 17, 135, 153
Skeps, over-full, 20; *v.* bar-frame hives, 156
Slinging, 69
Small-swarm system, 29
Smith, Mr. J., lecture on bee-keeping, 14, 15
South Kensington, apicultural show at, 72-74; list of awards at, 73; exhibits at, 103
Spain, apiculture for, 194
Spring overhaul, a, 216
Standard hive, 220
Stands for hives, 55
Statistics, bee and honey, 196, 218
Steele, R., Eclectic hive, 85
Stimulative feeding, 96, 203, 221
Stirling flower show, apicultural exhibition at, 48; bees at, 106
Stocks, strengthening and equalising, 17; removing, 29; uniting, 68; examination of, 71, 216; to be kept strong, 96, 222; making two out of three, 200; moving in frosty weather, 217
Straw hives at the South Kensington show, 108; at Crystal Palace show, 163
Successful at last, 208
Sugar, amount contained in the nectar of flowers, 116
Sulphur as a fumigant, 216
Super, a novel, 113
Super-covers, 55
Supering, 3, 18; best time for, 3; preparation for, 222
Supers wanted, 10
Supers, 39, 55; packing, 36; inducing bees to take to, 51; removing, 53; large *v.* small, 111
Surrey, county bee association for, 214, 226
Sussex, bee-keeping in, 132
Swarming, prevention of, 35; at an auction, 60; prepation for, 222
Swarms *v.* stocks for beginners, 3; management of purchased, *ib.*; late, 10; early, 30; moving, 35, 36; putting in place of stocks, 36; absconding, 62; in old combs, 114
Sycamore, 145
Syrup, 38
Tadcaster, honey harvest at, 111
Tegetmeier, W. B., on the bees' cell, 101
Thurber, Messrs., their large importation of honey, 142, 206; styles of honey, 218; their correspondence with the Baroness Burdett-Coutts, *ib.*
Ticking for quilts, 50
Transferring, 92, 114, 178
Uniting stocks, 5, 68, 114, 185-187
Ventilation of hives, 220, 222
Visitor, a distinguished, 223
Wall-flowers, 6, 30
Warwickshire bee-keeper, experiences of a, 12-14
Wasp, killed by a, 106
Wasps, 136
Waste comb to be boiled down, 116
Waste brood combs, 72
Watson, T. E., hive and supers at Stamford show, 85
Wax, 172
Wax-cells in a wasp's nest! 100
Wax-comb foundations, 20
Wax-moth, and means of its destruction, 144
Wax-smelter, 205
Westbury and Henbury Bee and Flower Show, 8
Westbury-on-Trym Bee Association, 59; bee and flower show at, 79, 80
West Herts, formation of a Bee-keepers' Association at, 57
White bees on alighting boards, 221
Willow, 228
Wilson, A. S., on sugar in flowers, 166
Wilson, Brice, his observatory hive at the Paris Exhibition, 46; is awarded a bronze medal, 120
Winter of 1878-9, 203
Winter, severe, 177, 197
Wintering bees, 143
Winter feeding, 96
Winter passages, 96, 198
Wolverhampton and Staffordshire Bee Association, 25, 152
Zinc perforated, 62; excluder, 219

CONTRIBUTORS.

A. C., 66
Anderson, A. J., 154
A. W., 89
Bad Locality, 49
Bentley, W. H., 127
Br. J., 32, 148
Briscoe, J. E., 88
B. U. G., 28
C. A., Capt., 49, 118, 175, 177, 232
Camaschella, J., 91
Cameron, A., 129
Chaloner, 111
Chaplin, C., 126
Chapman, T. A., 130
Carr, W., 141, 71, 228
Clark, John, 229
Coomber, 89
Conibeere, G. T., 108
Crisp, W., 131
C. T., 49, 195
Davidson, M. A., 147
D., Deal, 103
Desborough, J. G., 131
Duke, W., 107
Eldridge, J. H., 194, 195
E. R. N., 196, 229
Exhibit 178, 87
Farnborough, 28
Farnham, 10
F. H. A., 64
F. S. E., 87
Fuggle, H., 84
Fust, H. Jenner, 196
G. F., 65
G. N. P., 151
Godfrey, R. R., 194
G. P. S., 31
G. R. L., 30
G. T., 151
H. B., 88
Helmsley, 180
Henderson, G., 49
H. M., 30
Huddersfield, 178
Hunt, W., 146
Iliffe, R., 86
Irving, J., 211
Jackson, J. P., 175, 230
Jacob, H. W., 27
J. E. A., 179
J. H., 10
J. H. D., 230
J. H. W., 89
J. L., 30
J. L. S., 107
Jones, J. C., 111
J. R. J., 145, 197
J. S., Arbroath, 16, 63, 134, 148, 152, 178
J. W. N., 133
Lady Bee-keeper, a, 196
Lake, Isaac, 31
Lawson Sisson, J., 133, 134
Lightfoot, W. M., 10
Ling, David, 231
London Bee-keeper, 151, 198
L. T. R., 180, 231
M. A. H., 31
Manfield, R., 107
McGregor, Richard, 28
Martin, P. E., 201
Maxwell, John, 29
Mouche à Miel, 110
Oldham, E. H., 91
Parmly, Ehrick, 25
Parish, Frank, 216
Paterson, D., 127, 147, 178
Pearson, G. F., 194
Pine, Dr., 61, 178
P. J. W., 128
Procter, G. A., 132
Radcliffe, T., 88
Raitt, W., 10, 26, 62, 104, 150, 153, 234
Raven, 127
Raven, jun., 175, 196
Reisser, Dr., 176, 193, 234
Renfrewshire Bee-keeper, a, 9, 108, 177, 216
R. F. D., 64
Rollo, G. A., 196
Ross-shire, 215
Rusbridge, Alfred, 132, 133
Rysdale, W., 216
Sells, W., 108
Shearer, R. S., 66, 179
Sic Vos non Vobis, 28, 107
Simmins, S., 85, 131
Somerset, 111
Staines, 197
Steele, R., 85
Subscriber, a, 91
Symington, R., 129
Tauntonian, 110
T. F. W., 232
T. G., 133
Torry, J., 229
Traynor, J., 214, 228
Warwickshire, Bee-keeper, a, 12, 197, 198, 217
Watson, T. E., 85
Wishaw, a bee-keeper of, 132
W. G. R., 88
White, George, 110
White, John, 215
Wood, J., 109
Woodward, J., 152
W. R., 217, 231
Young, W. W., 218

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 61. Vol. VI.] MAY, 1878. [Published Monthly.]

Editorial, Notices, &c.

TO OUR READERS.

In commencing this, the sixth volume of the *British Bee Journal*, we beg to tender our most grateful acknowledgments to the bee-keeping public for the large measure of support accorded to us in the past, and to express a hope that by continuing our 'plain sailing' our services will be equally agreeable in the future; and that their valued patronage will be continued. It is now five whole years since we, trusting to the good feeling of bee-keepers, and without any knowledge of journalism, dared to step out of their ranks to offer ourself as a leader, to conduct a journal that should be devoted entirely to the interests of our subscribers in particular, and of bee-culture in general; and we hope and believe that thus far our mission has been fairly fulfilled. It can scarcely have been expected that during so long a period perfect smoothness could be maintained, for in every walk of life there is a 'lying spirit' abroad seeking opportunities for evil-doing, stirring up strife, promoting jealousy and anger, and by ill-omened whisperings 'separating very friends;' but we feel that through good and evil report our *Journal* has held on a straightforward course, and has in a general sense given satisfaction to its readers. That the *Journal* has been useful in the fullest sense of the term there is ample evidence in the fact that to its influence is due the establishment of the various associations that have sprung up all over the land, having for their object the cultivation of the bee in accordance with the principles it advances, followed by the shows of hives and bee produce, at which also have been exhibited the methods of manipulation which it has advocated.

To the *Journal* and its teachings may fairly be attributed the great revival of the art of bee-culture which has taken place; and, followed as it has been by the immense improvement and cheapening of hives and all kinds of 'bee-gear,' we fondly imagine that it has established itself as a power for good, and that it is recognised as the leading organ of apiculture in the United Kingdom.

And now, on entering on its sixth volume, may we venture to hope that our friends will signify their assent to the principles by which it is guided, by renewing their subscriptions forthwith, or, if not approved, that they will at once favour us with a halfpenny post-card to that effect? We are not rich in this world's goods, and can ill afford the cost and postage of *Journals* to those who do not intend to pay for them, and therefore we respectfully beg that early indications of renewal or refusal may be sent to us. At the natural expiration of subscriptions the *Journals* are sent to subscribers in coloured wrappers, and we most earnestly hope that the hint they are intended to convey will be effectual, or at least that we may be acquitted of 'want of courtesy' if after such hint has been given their delivery is suspended.

MAY.

May is usually considered the month of swarms, but of late years the weather has, as a rule, been so unkind during that period that, except in isolated instances, the happy swarming time has been delayed to the month of June; and we are almost inclined to think that climatic changes have so altered our seasons that it is not now safe to count upon May (or swarming) weather until *the end* of that hitherto red-letter month in the apistic kalendar. With this idea in mind we feel it necessary to caution our amateur friends against the mischievous notion that May is the

absolutely correct month for performing the operations which the improved system of bee-keeping warrants as tending so forcibly to more profitable results. We allude chiefly to the practice of artificial swarming, and the multiplication of stocks, often followed by the transferring of the contents of skeps to bar-frame hives. It is a very old adage which says, 'There is a time for everything,' and Shakespeare forcibly informs us that 'there is a tide in the affairs of men,' which should be taken at the flood if fortune's favours would be courted; but, unfortunately, neither of the 'wise sayings' gives any indication by which the time or tide may be recognised and grasped. It is therefore left to individual judgment, and as that is prone to err on the side of wishful hope, it is not difficult to imagine that the inexperienced may arrive at improper conclusions. Already we have heard of artificial swarming, queen-raising, transferring, and the like—operations which are entirely out of place, and utterly wrong at this early date. Happily, we have been *'taught to be cautious;'* and we heartily wish we could instil the conception into the minds of all bee-keepers, that enthusiasm might be tempered, and possibilities as well as probabilities duly considered. It can never be too often impressed upon the minds of bee-keepers that in bee-keeping there is no *Royal Road* to success. A small farmer, whose successful management of his farm provoked the curiosity of his envious neighbours, is reported to have said (in effect), in reply to their inquisitiveness, 'Here are my wife and child, they are my implements! but I cannot show you all our anxious cares.' And bee-keepers should take the lesson to heart, for only by care and painstaking can success be insured. Large results and great profits are occasionally brought to the front as the outcome of the let-alone system, and the bee-keeping world is startled, and the public generally stimulated; but, as a rule, it will be found that such (so-called) system is hollow, and the results achieved more plausible than true. Bee-keepers cannot get rid of the primæval curse more easily than others; 'sweat of the brow' is demanded, and they will best succeed who have learned to labour and to wait.

Commencing Bee-keeping.—We have many inquiries as to the best way to commence an apiary, and to all alike we recommend that which will entail the least possible outlay, so that in the event of failure there may be the less to regret. By our method the frames of the cheapest hives are all interchangeable with those of the most expensive, and those who wish to commence warily would do well to recognise the system. Many who determine to start an apiary do so on the faith of a sensational story which appears to pave the way to riches without exertion; only place a few stocks of bees in a garden, and wealth will pour into the lap, and increasing in threefold ratio (nothing less) a fortune is soon accumulated, and in a few years 'retirement' is a possibility, and easy competence a foregone conclusion! This is the twaddle that one commonly finds in bee books, written by those who know little or nothing of the subject, and who simply write (or compile) them *for sale*. We cannot think there is a subject under the sun that has been more unmercifully maltreated than apiculture, nor is there one which yields more pleasure in its study and profit in management, provided a proper understanding of the habits and customs of the bees has been first acquired. There are those who would persuade beginners to begin 'in the natural way,' that is, place a swarm in a straw skep in the spring, and when it gets heavy destroy the bees and take the honey; that is the so-called 'natural' mode of keeping bees,—a mode handed down from father to son for ages until the ignorant believe it to be the right and proper thing, and that the bees really like it. The natural bee-hive is a hollow in a tree, rock, or embankment, which the bees take possession of, and fortify to the best of their power against the weather and all enemies; but man has learned that smoke will drive the bees out of their homes, and that while under its influence their honey may be taken from them, and this practice, which is known to be two thousand years old, is common in the present day. Seeing, then, that the obtaining of honey is the primary object in keeping bees we think it may safely be laid down as a rule that in commencing an apiary it will be wise to adopt hives that give the greatest facilities for so doing, and this brings us to the question of hives with moveable *versus* fixed combs.

Moveable versus Fixed Combs.—When building a rabbit-hutch, chicken-pen, or piggery, is it not a *sine qua non* that every part of it shall be readily comeatable? Who would think of erecting a hutch, pen, or sty, in which rabbits, poultry, or pigs, were to be incarcerated, and left to their own devices, their owner knowing nothing of their rate of increase, either in bulk or numbers, their condition as regards cleanliness, or whether living and dead were not occupying the same apartments, and himself the while unable to investigate the matter? Such a keeper of live stock would be considered insane, or he would be held up to public ridicule as an example of gross stupidity; yet in regard to bee-keeping similar instances of folly are of daily occurrence, and many books have been written in which the absurd practice is not only defended, but actually recommended.

We cannot think of an argument in favour

of a hive with fixed combs, unless it be one founded on such grounds as would induce one to solder up his watch-case so that he might not be too often tempted to look at its beautiful works. Some such idea rankles in the minds of fixed-comb-ites, for they seem to believe that because the combs of bar-frame hives are moveable, that they must necessarily be continually handled about and played with—a proceeding which might be injurious to the bees, and therefore, say they, 'bar-frame hives are a nuisance.' Now such line of argument (?) would be equally applicable to the rabbit-hutch, hen-roost, or piggery; for we know that there are times when it is of the utmost importance that their occupants should not be disturbed, but nevertheless we think it will be granted that every such contrivance should have means and conveniences by which their owner might at any time be enabled to inspect their interior. On the score of cost, the bar-frame hive compares most favourably with the skep or box hive. The highest-priced double-walled bar-framer of our recommendation, including roof and stand (the legs), is 25*s.* to 30*s.*, while the straw skep in the form of Neighbours' Improved Cottage Hive is 35*s.* *without* stand, roof, or outer-casing; the lowest-priced bar-frame hive with roof and floor-board costs 8*s.* 6*d.*, while the lowest-priced Pettigrew skep with cheapest floor-board, but without a roof, costs 7*s.*, and the highest 10*s.* 6*d.* This is an old story, but at the commencement of the swarming season it is well to point out the relative merits of the respective principles; and we submit on both, the questions of economy and convenience, that the bar-frame hive is in the ascendant. Concluding, then, that it is not more *necessary* to interfere with the moveable comb-hive than with that in which the combs are fixed, but that in the former there are advantages which the latter do not possess; furthermore, that from an economical point of view they have considerable advantages, both in respect of cheapness and durability, we think it well to advise that beginners should use bar-frame hives only.

Swarms *v.* Stocks for Beginners.—In all cases when our opinion is asked we recommend that beginners should commence with swarms in new bar-frame hives in preference to purchasing established stocks, for it is seldom that bee-keepers care to send out their *best* stocks; and if they did they would run great risk in travelling, and a damaged stock in the hands of a beginner would be in the nature of a calamity that would damp his ardour, and cause him to vote the pursuit a nuisance. Swarms are easily packed, will travel safely, may generally be relied on as healthy, and if sufficiently strong leave no cause for blame with the vendor; whereas if *stocks* be purchased, and do not fulfil the expectation of the purchaser, the vendor is blamed, though he may be quite blameless, and general dissatisfaction is the result. Swarms should be packed for delivery at a distance in bar-frame hives, the cheapest will answer the purpose, but they should be of a kind that contain the frames the beginner intends to use in his apiary. The method of packing was fully described in the *British Bee Journal* for March last, so need not be repeated.

Management of Purchased Swarms.—Swarms newly-purchased will have travelled some distance, and, as a rule, it will be well to give them food immediately on their arrival. This will be best done by sprinkling the exposed surface of the perforated zinc, or the cheese-cloth with which the bees are confined to the hive with syrup, so that it may be well distributed, and that all the bees may quickly get a supply. They should then be placed upon the stand they are to occupy, and when quiet, which they will speedily become after having partaken of food, the entrance should be gently unclosed and the bees set at liberty. Care should be taken to set the hive level across the front, but raised an inch or so at the back, as in that position the bees are more likely to build straight combs. If the weather be unkind after swarms have issued they should be fed on every day when they cannot get abroad, until their hives are filled with comb, when they may be supered, or dealt with in any way desired.

Supering.—We are frequently inquired of as to the best time for supering, and in all cases have given one general rule, and from it we cannot depart. It is of no use to put on supers until the hive is filled, or nearly so with comb, for the bees can scarcely be expected to fill a second receptacle with the first (the stock hive) partly empty: although sometimes, when the latter is over large, they will do so, as it is easier for them to secrete wax for comb-building above a strong brood nest that gives forth great heat than at its side where the heat is less: but in such case the queen will, if possible, take possession, and deposit eggs in the combs as quickly as they are built.

It is of no use to put supers on before there is a surplus population, *i.e.* more bees to gather honey, &c., than are required for feeding the brood. Nor is it of any use to put on supers when there is a scarcity of honey in the fields, woods, and orchards; for if the bees are not able to collect more than is sufficient for the daily requirements of their hive, it will be absurd to expect them to store any in the super.

We therefore lay down a general principle, that the right time for supering is when there

is a large and increasing population, plenty of honey in the fields and orchards, and fine weather to enable the bees to get abroad to obtain it.

Nadiring.—Nadirs or nethers are vessels of wood or straw, or a compound of both with glass, to be placed beneath a stock hive, either for the purpose of increasing the breeding space or providing storage room for honey. A nadir for a straw skep would be exactly similar to about four inches of the lowest part of the skep itself, supposing it to be cut off evenly; it is, however, made separately, and usually in the form of a straw ring of the same diameter as the skep, and when placed under the latter their junction is luted with a mixture of cowdung and clay, which form a hard cement, impervious to insects. The rim of an old barrow-wheel is often called into service as a nadir, and sometimes a simple wooden hoop is used.

With bar-frame hives shallow boxes are used of about half the depth of the stock hive, and fitted with frames to correspond. In ordinary box hives similar shallow boxes are used without frames—the object being simply (as in the other cases) to increase the depth of the stock hive. In all hives where nadirs are used as above, the entrances should be kept in their original positions, *i.e.* on the floor-boards, the nadir being intermediary between it and the stock hive. When nadirs are used as receptacles for honey, means are usually adopted to prevent the queen and drones from gaining access therto, which is generally effected by interposing a slotted board or adapter, which will admit the workers only; and in that case the entrance to the hive must be on a level with the top of the nadir, so that the bees shall go *down* into it. There should, however, be a way out of the nadir at its lowest part, or the bees, finding it easier to get into than out of the slotted gateway, may become over-crowded and perish of suffocation. A shallow American cheese-box forms a very good nadir for a skep, and in the hands of the late Mr. Pagden afforded means for obtaining vast quantities of honey in Sussex, and now Mr. W. T. Braddy, of Kelvedon, Essex, employs similar means with the greatest success. The '*way out*' of a nadir should have a self-closing gate in the form of a bee-trap, and Mr. Cheshire's five-pin trap, being easily made, commends itself for the purpose.

Ekes are also used for enlarging a stock-hive, and sometimes for increasing the size of a super. Like the nadirs they are placed beneath, to increase the depth of the hive or super, but are much shallower than the so-called nadirs. Both nadirs and ekes are sometimes called 'raises;' and when hives are said to have been raised, it is implied that a nadir or an eke, or both, have been placed below the stock-hive.

Collateral Boxes.—These are receptacles for honey placed on either side of the stock-hive, and good results are often obtained from them, particularly when the bar-frame principle is adopted. Almost everyone has heard of Nutt's collateral hive, 'The Pavilion of Nature' he was fain to consider it; it was a box-hive, with super on top, and one box on each side, admission being given to the bees by the withdrawal of slides. It answered well until the centre or main box was filled with brood, when the queen would move into one of the wings of the Pavilion, whence, the combs being fixtures, it was almost impossible to dislodge her. Generally, the collateral principle was a failure, because of the fixedness of the combs, but the moveable comb principle has altered the condition of things and collateral hives, or, as we shall prefer to call them, '*one-story*' hives, for we think the principle may be applied in a longitudinal direction with probably greater success.

WORK FOR THE MONTH.

Look out for swarms, and be prepared with hives to put them into. A stock of makeshift hives should be kept in hand; they cost very little, and will keep, and the bees, combs, &c., can be exchanged into better in autumn if thought necessary.

Queenless stocks should be united, or, if there are plenty of bees in them, they might exchange homes with any colony that contains drones. In doing this, if in skeps, drive out all the bees from both hives, and interchange the hives; the queenless lot will thus get plenty of brood, and will soon raise queen-cells that will be available for any purpose, and the full stock having a queen will speedily fill the combs of the queenless with brood, and both will probably prosper. Do not attempt uniting queens to stocks that have been long queenless, it generally fails.

Queen-cells should be raised in preparation for artificial swarming, and twenty-four hours after swarms have been forced, one sealed cell should be put into each forced hive.

Look out for queen-wasps and destroy them.

Feed all swarms during cold or wet weather, and see that the stocks from which they have issued do not suffer from stress of weather.

Remember, there is generally a fortnight's wretched weather in the middle of May, and the full moon happening then will not be likely to improve it. Watch for it, and try to prevent mischief.

If swarms are weak, give them combs, if they can be obtained, placed alternately with empty frames in the hive; or give sheets of comb foundation reaching about half down the frames.

Sow bee-flower seeds; order plants for autumn transplanting—wallflowers and arabis, they will pay in spring. Melilot may be transplanted now.

Hives should be protected from oppressive heat, as well as from cold.

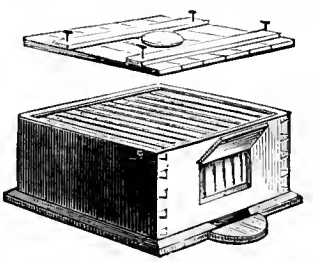
Super all hives that are well filled with bees, if weather permits of them gathering honey.

Have regard to ventilation. Very little is required during the breeding season, but when necessary it should be effected by increasing the size of the hive entrance.

Imported Ligurian or other queens may be given to stocks from which swarms have been driven. They should be caged for forty eight hours in tubular cages thrust between the combs of brood; there is very little risk at this season with hives containing plenty of young bees.

HIVES.

It is now nearly ten years since in all humility we entered an appearance before the public, and ventured to suggest that the hives then put forth as the best bar-frames were faulty in construction and so exorbitantly high in price as practically to hinder, rather than advance, the science they were intended to aid and exemplify. At that date the hive of hives most generally acceptable was that known as the Woodbury hive; of which we give an illustration, which is correct in the main, but shows



an improvement of our own in the formation of the crown-board, which in the Woodbury was all in a piece, but which we had rendered into strips to prevent warping, and to enable the bee-keeper to remove it piecemeal when it was not absolutely necessary to remove it altogether. This hive was single-walled of inch material, but without a roof or any outer protection, and the charge for it by the eminent London firm that then monopolized the business was 25*s*. An outer casing with roof to protect it from the weather was 35*s*. additional; the stand on which it was to be kept above the earth entailed a further charge of half-a-guinea; the Woodbury bar-super with glass walls to fit the hive came to 21*s*. extra; and the adapting-board to keep the queen from the super swelled the cost by an extra half-crown: so that obtaining the full Woodbury outfit entailed at that time an outlay of 94*s*., or nearly 5*l*.; and when it is considered that the hive contained no wax-guides to ensure straightness of combs, and was a crude structure at the best, full of inconveniences and errors, which made it '*a trial*' to its possessor and most aggravating to its occupants, rendering them furious and most difficult to pacify, it can scarcely be wondered at that the votaries of the old straw skep school voted it a nuisance, and condemned both it and the system it was intended to aid as new-fangled follies and expensive luxuries.

We do not propose to go over old well-trodden ground and rehearse the history of hive improvement from that time, but will simply call attention to the fact that with the *Bee Journal* there sprang up a desire for improved construction in bar-framed hives and an endeavour to popularise them by making them cheaper, so that they might fairly come into competition with the straw skep. This idea largely gained ground, and when the first Crystal Palace Show was contemplated a prize was offered at the instigation of Mr. Hunter, then the Hon. Sec. of the British Bee-keepers' Association, 'for the best skep or box-hive for depriving purposes for cottagers' use that can be supplied for 3*s*., exclusive of floor-board;' and for a ten-framed Woodbury hive minus floor and crown boards we were unanimously awarded the prize of 2*l*. and a first certificate.* This hive was designed by us to come into competition with the old straw skep, its great merit was cheapness, there was nothing special or original in its construction; and save that the notched racks and the spaces above the frames were dispensed with, it was to all intents and purposes a Woodbury hive of the same internal dimensions as those described by Mr. T. Woodbury, their inventor. In the *English Mechanic and Mirror of Science*, a most excellent weekly paper, we were, in 1871 and thereafter, permitted to expound our ideas on the imperfections of the Woodbury principles of construction, and to suggest improvements, and, as a consequence, the faults were eliminated and a hive produced which was far superior to the original, and in which all the best points of the most expensive were retained, and to which many improvements were added; it was a double-walled hive with a dead-air space on each of its four sides (dead air is the best non-conductor known), a double reversible

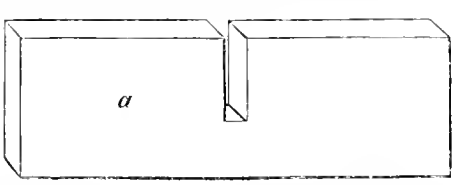
* We dwell upon this point because in sundry books that have been written we have been somewhat taken to task for having produced a hive that lacked completeness, and cheap hives in general have been therein most sweepingly condemned; but when it is remembered that the condemnation comes from those whose interest it is to sell expensive hives, its value may easily be estimated,

floor-board, a crown-board in pieces (strips) as before described, an upper chamber to contain a super, with roof over, a super with a glass side to hold about 20 lbs. with adapting-board on its bottom, and the total cost was twenty-five shillings, all the outside being thoroughly painted. This hive was called the Cottage Woodbury. Improvement followed improvement, and next appeared a hive which contained precisely the principles lately advocated by the astute writer in the *Journal of Horticulture*, 'B. & W.,' but it did not then find favour. It, like the Cottage Woodbury, was thoroughly described in the *English Mechanic*, where full directions were given for the manufacture of both. In 1873 the *British Bee Journal* was started, and since then the strides that have been made in the improvement of all kinds of bee-gear need no recapitulation, and at the present day excellent bar-frame moveable comb hives containing the best principles can be obtained at a less price than is charged for skeps when floor-board and roof are added. Of our share in the improvements effected we care to say but little; but in answer to those who may think we have given them undue prominence in this *Journal*, we reply that it is our pleasure to make known to the world, to the best of our ability, the most improved methods of manufacturing hives and bee furniture, and of the general management of apiaries. Our columns are open, and if our teaching appears faulty we shall only be too glad to publish others' opinions thereon.

ABBOTT'S ECONOMIC HIVE-STAND.

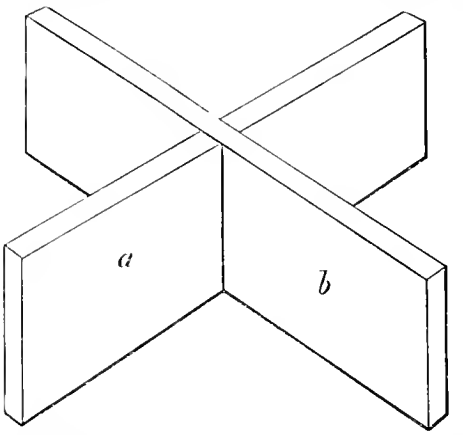
Economy being the order of the day, we have devised a method of forming a hive-stand which, we think, cannot be easily beaten on its merits. It is easy to make, is very inexpensive, cannot be blown over, will last many years, will suit any hive that is without legs, and when not in use can be taken to pieces and packed away in the smallest possible space.

It is composed of two short ends of boards of any desired length, say twenty inches, in the centre of each of which is to be cut a notch, half way through, of the same width as the boards are in thickness, as shown in fig. 1. One



of the boards is then inverted and the notched portions of both are fitted together, forming a cross in which *a* in fig. 1 will appear as *a* in fig. 2, the inverted piece showing as *b*.

Here, then, is a stand of the strongest type, which for usefulness cannot be surpassed; it can be formed of any old boards, and their thickness is immaterial since their ends and centres



can be strengthened with strips nailed on; and the same may be said in respect of soundness, for 'shaky' boards, fit for nothing else, will do for these if strengthened as suggested. If made of best inch yellow deal, the cost of the material will be about ninepence, and it will last a lifetime.

There are other advantages in this kind of stand over the old log or block, viz., in its portability, in its permitting outlying bees to find commodious shelter, and in its being readily fitted with nadirs; and probably, now the 'happy thought' is enunciated, others will be discovered.

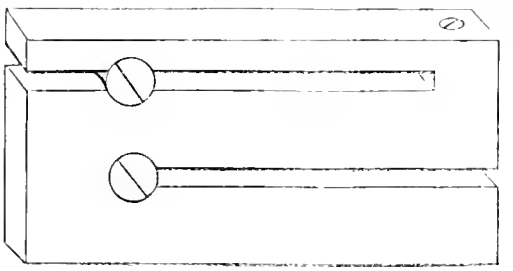
WALLFLOWERS.

We cannot speak too highly of these beautiful and highly-scented bee-flowers. They have been in profusion with us for three full months, and are now as gaudy and fragrant as ever. The bees have drawn heavily from them on every fine day, and all our suggestions of artificial pollen have been scouted by them since they could gain it naturally from the flowers direct. We cannot forbear repeating our recommendation that every bee-keeper should sow seed *now*, or obtain plants as soon as possible to ensure an early supply of flowers for next year.

ABBOTT'S ECONOMIC ENTRANCE SLIDES.

This, as may be seen by the engraving, is easily made of thin board, any waste pieces will do. They simply require to be cut with a saw as shown, and fixed one on the right and the other on the left of the hive entrance. The illustration is of the right-hand piece, supposing the reader to be standing in the front of a hive;

and as will be understood it is moveable towards the left until the upper screw comes to the end of the slot in which it is fixed. Their strength



will be much increased by bradding slips on both ends, and they may be made of any desired length, but we here show the idea in its most simple form, that none may mistake the intention.

BRITISH BEE-KEEPERS' ASSOCIATION.

Our readers will remember the condition of the affairs of the above Association at the end March, as recorded in the *Journal* for April, and following upon them we received a circular, a copy of which we here publish, dated April 8th, Abbot's Hill, Hemel Hempsted :—

DEAR SIR,—I beg to inform you that at the Monthly Meeting of the Committee of the British Bee-Keepers' Association held this day, it was resolved, in compliance with Rule 7, that an Extraordinary General Meeting be held on Monday, April 29th, at 4.30 p.m., at the Birkbeck Institution, 29 Southampton Buildings, Chancery Lane. To consider the following amendment to Rule 5—That the Association shall for the future consist of (1) 'Members,' who shall pay an annual contribution of one guinea or upwards to the funds of the Association, they alone having the power to vote in the election of officers, and being alone eligible for election. (2) 'Subscribers,' who shall pay any sum less than one guinea, but not less than five shillings, and who shall take no part in the management of the Association, being themselves ineligible for election. Donors of five guineas and upwards in one sum to be regarded as life members. I hope that you may be able to attend the meeting, or if not that you will signify to me in writing your wishes respecting the proposed amendment, and if willing to support the Association, whether you will be a member or a subscriber. I shall be much obliged if all subscriptions, whether those of members or subscribers, can be forwarded to the Hon. Treasurer, W. O. B. Glenny, Esq., Chief Accountant's Office, Bank of England, or to myself, on the first of May.—I have the honour to be, Sir, your obedient servant, H. R. PEEL, Honorary Secretary.

Shortly afterwards we received a note from the Rev. Hon. Secretary, which led to an interview, at which it was so clearly shown that new life had been instilled into the Association, that it would be purged of the elements of discord, that, through the indefatigable exertions of Mr. Peel, it was gaining strength, and undoubtedly in his hands would fulfil the purpose for which it was established; and last, but not least in our estimation, as it was an Association which originated with us, we, in the face of the new life imported into it, felt we could not consistently further promote a rival Association. We therefore arranged to attend the meeting above mentioned and do our utmost to advance the objects in view; and we are assured by the majority of those with whom we have been in correspondence that the course we have adopted is the correct one under the circumstances. We thank most heartily those who were so willing to assist in the formation of a new Association, if it were necessary so to do; and we trust that after reading the results of the meeting, *for we have delayed the publication of the Journal so as to give the earliest information respecting it*, that they will give over their adhesion and influence to the original Association, and prevent the spectacle which would be the result of an establishment divided against itself.

COMING SHOWS, 1878.

July 10. Ealing, J. Hunter, Hon. Sec.

Aug. 21. Westbury-on-Trym, J. B. C. Burroughs, Hon. Sec., Westbury-on-Trym.

Aug. 30, 31. Arbroath, William Raitt, Hon. Sec., Liff by Dundee.

Sept. 5, 6, 7. East of Scotland, William Raitt, Hon. Sec., Liff by Dundee.

Sept. 24. Moreton-in-Marsh, Rev. J. W. Clarke, Hon. Sec., Moreton-in-Marsh.

Secretaries of coming Shows will greatly oblige by forwarding lists of fixtures. They will be inserted in this column without charge.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

The first quarterly meeting of the fourth session was held in M'Innes' Temperance Hotel, 12 Hutcheson Street, Glasgow, on Wednesday, 17th inst.

Present: Messrs. Sword, Wilkie, Thomson, Rev. Mr. Irvine, Imrellan, Baillie, Laughland, Kilmarnock, and R. Bennett. Mr. Sword was called to the chair. The minutes of last meeting were read and confirmed. Letters of apology for unavoidable absence were received from Messrs. Young, Perth; Paterson, Struan; Captain M'Laren, Greenock; and Davis.

Mr. Bennett was sorry to announce the death of two patrons since last meeting, namely, Charles Malloch, Esq. and Major Ferguson, Cassillis House, Ayr. Mr. Bennett reported the result of his meeting Mr. Menzies regarding the Dumfries Show, and laid upon the table letters of correspondence and agreement. The meeting unanimously resolved to hold the summer show in conjunction with the Highland and Agricultural Society Show at Dumfries. Mr. Bennett was instructed to communicate with Mr Menzies there anent. It was proposed by Mr. Thomson that hives and other bee furniture should not receive money prizes at the coming Show, but first-class medals should be substituted instead. Mr. Bennett proposed, before going into the details of a Prize Schedule, to issue last year's Prize Schedule to the various members and allow them to suggest what prizes should be retained, strike out the others, and add new ones; the Schedule to be returned within ten days; and it was hoped by adopting this plan that the Committee would get the real voice of the Society, and would have little difficulty in drawing up an improved Prize Schedule.

WESTBURY AND HENBURY BEE AND FLOWER SHOW.

In connexion with the Westbury-upon-Trym Bee-keepers' Association.

The committee of the Westbury-upon-Trym Bee-keepers' Association have much pleasure in announcing that they will hold an exhibition of bees and their produce, hives, and bee furniture, and the manipulation of bees, and also a cottagers' fruit and flower-show, at a field behind Belle-vue, Westbury-upon-Trym, on Wednesday, August 21st, 1878.

The prize-list is an extensive one, there being forty-eight prizes offered for hives and bee furniture, bees and their produce, or a total amount of nearly 40*l*.

Entries free up to July 31st, and after that date on payment.

The hon. sec., Mr. J. B. C. Burroughs, Hill Side, Westbury-on-Trym, will be glad to receive applications for further particulars.

REPORT OF THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

In issuing the second Annual Report and Balance Sheet of the Lincolnshire Bee-keepers' Association, the Committee have much pleasure in stating that the increase of Members during the year has been 55, making the total number 156; this increase, the Committee venture to think, will be considered most satisfactory.

Encouraged by so marked a success, and the great interest manifested in the institution (which proves without doubt that the work is recognised as a good one), the Committee, relying on the united help of its Members and friends, arranged to have a second Exhibition, and in accordance with a resolution passed at the last General Meeting to hold a Honey Fair in connexion with it.

The usual announcement of the Exhibition was made together with that of the proposed Honey Fair, and as the *British Bee Journal* for September stated that the Lincolnshire Show would be the great test show of England, the Committee were desirous that it should be made worthy of the high position assigned to it. They accordingly used their best endeavours to ensure that success which should make the institution the foremost of its kind. The Right Rev. the Bishop Suffragan of Nottingham, President of the Association; the Mayor and Mayoress of Grantham, the Vicar of Grantham, and large numbers of ladies and gentlemen from the town and neighbourhood, and many from distant parts of the country, visited the Show.

The Committee are glad to be able to state that the Exhibition fully realised their expectations, whilst the Honey Fair may be looked upon as permanently established. This latter fact (a most important one) cannot fail to give general satisfaction to bee-keepers, since it had long been a subject of complaint that there was no market in the country for the disposal of honey produce at a remunerative price. To find that the Fair was quickly cleared of all honey offered, as well as a large quantity entered for exhibition only, at prices from 1*s.* to 1*s.* 6*d.* per pound, will be encouraging to all; and with the highest confidence the Committee appeal to the public for their kind support at the future Honey Fairs of the Association.

Referring to the Exhibition itself, the numerous collections of exhibits embracing almost every conceivable shape and make of hives, supers, and other bee appliances, by the principal makers, to suit the most scientific apiarians, attracted much interest.

The Committee are pleased to draw attention to another notable and interesting feature of the exhibition, which they submit as one deserving of encouragement in future, namely, the provision of a number of microscopes with specimens of the various parts of the honey bee; they also suggest that it is desirable as soon as possible to secure a complete set of Auzoux models of bees, as seen at the South Kensington Museum, which the treasurer learns can be purchased for 8*l*. from Dr. Auzoux, Rue Vaugirard, Paris.

The exhibits in the Honey Class were greatly admired, and, notwithstanding the unfavourable season, many beautiful supers were produced, and upwards of three-quarters of a ton of honey was staged, though, speaking generally, the colour was not so fine as that of the season previous.

In the Class for Natural Objects, illustrating the Economy of the Honey Bee, there were some interesting exhibits, consisting of bees of various species—bees' enemies, collections of the best honey-producing plants in flower, besides many others; and as this is one branch of the science which the promoters desire to advance, special prizes of books bearing upon the subject (by the best authors) should be provided. The Committee feel this to be important, as one means of greatly helping on the work.

The manipulation with live bees, demonstrating the impunity with which bees may be handled, was again kindly conducted by Mr. Abbott, with the assistance of Mr. R. Symington and Mr. J. Abbott, and, as usual, created intense interest; whilst Mr. Carr and Mr. Desborough most ably explained to the numerous visitors the many interesting features connected with the operations. Unfortunately, a heavy rain set in, preventing the work being fully carried out, otherwise the bee manipulation would doubtless have added greatly to the success of the day's proceedings.

The Committee are much indebted to Messrs. Sharp and Co. for use of the Grange Gardens on this occasion.

The Committee are most anxious to impress upon the Members the objects for which the Association has been formed, and, to ensure its continued success, the desirability of keeping in view what must be considered the vital points, namely, the encouragement, improvement, and advancement of bee culture, as a means of bettering the condition of the labouring classes, as well as preventing the wholesale destruction of that industrious little labourer the honey-bee; and as the holding of exhibitions where practical knowledge may be obtained, and of lectures, illustrated with models, specimens, and diagrams, are the surest methods of extending this humane work, they would earnestly urge all Members to give their attendance on these occasions and use their best endeavours to persuade others to do the same.

The best thanks of the Association are again due to the Right Honourable the Earl Brownlow for the use of a magnificent collection of choice plants on the day of exhibition, which were tastefully arranged by Mr. Bolton, and added considerably to the appearance of the Hall; also to Mr. T. W. Cowan of Horsham, Mr. J. G. Desborough of Stamford, Mr. C. N. Abbott of Southall, Mr. Wm. Carr of Newton Heath, Manchester, Mr. R. Symington of Market Harborough, and Mr. Bolton of Belton, who kindly officiated as judges; as also to Mrs. Boulton, Dr. Robbs, Mr. E. Ball, and Mr. S. Gamble, for the kind loan of microscopes; and to all those ladies and gentlemen who kindly contributed to the Prize Fund.

The Association's Silver Cup (open to Members who shall show the largest quantity of honey taken without destroying the bees, to become the absolute property of a Member who shall win it at three separate Exhibitions of the Association) was for the first time awarded to Mr. Sells of Uffington, this fact must be considered to weigh favourably for the county of Lincoln as a honey-producing one. Mr. Sells was presented with a handsomely illuminated certificate bearing the signature of the President, Treasurer, and Members of the Committee, and congratulated upon his good fortune. This certificate, which was truly of itself a prize, was generously pro-

vided by Mr. Holloway of London, to whom your Committee are greatly indebted.

The financial statement annexed, the Committee venture to hope, will be considered satisfactory.

J. Clemence, *Chairman.*

Balance Sheet of the Treasurer for the Year ending September 30th, 1877.

RECEIPTS.

	£	s.	d.
Balance brought forward	0	10	6
156 Members' Subscriptions (2*s.* 6*d.* each) ...	19	10	0
Donations to Prize Fund from—			
The President	1	1	0
W. Ostler, Esq.	1	1	0
The Mayor of Grantham, G. Shipman, Esq.	1	1	0
Sir J. D. Astley, Bart., M.P.	1	0	0
Sir W. E. Welby Gregory, Bart., M.P. ...	1	0	0
Major Cust, M.P.	1	1	0
Messrs. Hornby and Sons	1	0	0
Donations to Prize Fund under 1*l.*	19	4	3
Amount of Prize returned by Mr. Godfrey ...	1	17	6
Donations to Association	6	13	0
By Advertisements in Pamphlet	2	2	6
Amount of Entrance-fees from Exhibitors ...	6	6	6
,, Sales of Exhibits	21	5	6
,, Commission on Sales of Ditto ...	1	15	6
,, Sales in Honey Fair	10	18	3
,, Commission on Sales in Ditto ...	0	17	4
,, Admission to Exhibition	12	8	8
	£110	13	6

EXPENDITURE.

	£	s.	d.
Honey Slinger	3	0	0
Hive for Drawings	0	9	0
Bees for Drawings	0	10	6
Silver Cup	5	15	6
500 Pamphlets	5	18	0
Printing and Stationery	5	0	6
Advertisements and Journals	13	17	3
Stamps, Carriage, and Sundry Expenses ...	2	17	3
Hire of Hall for Exhibition and Meetings, Erection of Tent for Manipulation, and Expenses on Day of Show	8	18	6
Amount paid for Sales of Honey, &c., in Show	21	5	6
,, ,, Ditto, ditto, in Honey Fair	10	18	2
,, ,, Prizes	28	5	0
Balance at Bankers'	3	18	4
	£110	13	6

VALUE OF ASSOCIATION PROPERTY.

	£	s.	d.
Silver Cup	5	15	6
Two Slingers	3	15	0
Balance at Bank	3	18	4
	£13	8	10

Examined and found correct—

A. Cockman, *Auditor.*

BRITISH BEE-KEEPERS' ASSOCIATION.

The extraordinary meeting, alluded to in another column, took place at the Birkbeck Institute on the 29th ultimo, at 4.30 p.m. The Hon. A. Legge was called to the chair. There were present Rev. H. R. Peel, Hon. Sec., Messrs. W. O. Glenny, Hon. Treasurer, Morris, Lemare, Cowan, Jackson, Hunter, Freeman, Abbott, Minson, Hooker, and Henderson. The minutes of former meetings were read and confirmed. It was resolved that the Society be composed of a President, Vice-Presidents, Treasurer, Secretary, Members and Honorary Members, and managed by a Committee, of which the President, Treasurer, and Secretary, shall be *ex-officio* Members.

The Hon. Sec., the Rev. H. R. Peel, reported that in accordance with the power vested in him, he had solicited, and had obtained the consent of, the Baroness Burdett-Coutts to be President of the Association, a fact that elicited a joyous hum from those who had so long been queenless; and, we may say, consequently profitless. Regarding the subscriptions of Members and their classification, it was resolved that they should have one vote each for every five shillings subscribed, five shillings being the minimum subscription entitling to membership. Donors of five pounds or upwards, in one sum, shall be regarded as life-members, and shall be entitled to four votes (as if they were annual subscribers of one or more pounds) for every five pounds subscribed. Life members, and subscribers of one pound per annum or otherwise, shall alone be eligible for election as Members of the Committee, this rule not to apply to the *ex-officios.* Donors of Prizes of the value of one pound or upwards shall be considered Honorary Members for the year, and shall be entitled to the same privileges as subscribers of that amount.

Regarding the Committee for the ensuing year, it was found that they had already been appointed, a fact that appeared somewhat startling.

The great feature of the evening was a determination to hold a grand show during the months of August or September, the Committee in the meantime to decide on the locality and Prize-Schedule, and to publish the same in our next issue.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE OPENING SEASON.

The unprecedentedly wet and barren honey season of 1877 was succeeded by an open and very humid winter, with comparatively few free flights for our favourites; notwithstanding, when I made my spring overhaul on February 23rd, I found things much better than I had anticipated, the sole remaining straw skep of my apiary having alone succumbed from the effects of damp (absorbed through lack of external protection before coming into my possession), the combs being white and mouldy, a large defunct population and abundance of surplus store: while my nine Stewarton colonies were thoroughly dry and in fine condition, every queen well and active, and a considerable quantity of brood in all stages, the area of sealed being as usual much in favour of those possessing pure Italian queens, although the weaker stocks, clearly demonstrating the earlier start of the imported, and as much overplus food as would tide the weaker over a couple of months.

The early mildness gave place to a six weeks' tack of very dry, cold weather, with piercing, withering winds from north and north-east; the snowdrop, crocus, and early spring flowers but wasted their

sweetness on the chilly air, our poor bees being detained close prisoners within their hives. Those bee-keepers who in autumn had administered only sufficient food to bring them through to March, discovered their mistake, the temperature being so low as to cause their bees to neglect the proffered sustenance; and when the cold spell came to an end, middle April bringing genial warmth, the mortality all around our district was something painful to hear of, and reports from other localities equally bad. A friend in East Lothian, on 4th April, writes as follows:—'As to the bees, I cannot report progress; they are a poor lot in our country side. Out of some 120 skeps that were considered in fair keeping order in the fall, I am quite certain there are not now twelve living ones. A— is the luckiest man I have heard of, as the Stewarton Italian stock you presented him with, and one of the hybridised ones, are in very good trim for working, should we only now have good weather.'

I chanced to meet my old preceptor the other day, and sadly he told me he was left bee-less the first time for the last twenty-four years; positively touching were his remarks. 'He had no heart to go into his garden now bereft of its busy hum—the silence was insufferable.'

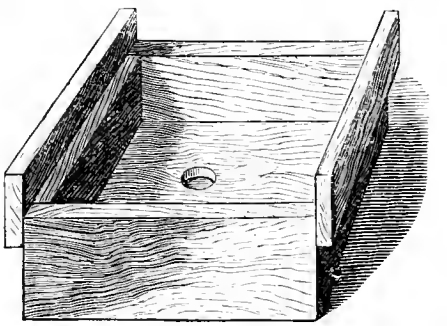
The superiority of the moveable over the fixed comb system was never better illustrated than during this last trying spring, the weak stocks of the skeppists all miserably perished, while those using frames by a simple interchange of sealed brood or food with the strong, have brought all safely through. Wind chopped round with genial rain, and first humble queen appeared on wing 14th April, harbinger of the warmth which followed, bringing the gooseberry and planes rapidly into bloom, the beginning, it is to be hoped, of a good honey season.—A Renfrewshire Bee-keeper.

LATE SWARMS.

I had heard and read so much of the worthlessness of late swarms, that when one of my Ligurian hives threw out a strong swarm, about the 14th of July, I returned it to the parent hive, but as it came out again on the 17th, and I had one or two of your Crystal Palace Hives standing idle, I hived it, late as the season then was. On the 24th of July the same hive threw a second swarm, and having had so little luck in returning the first, I hived the second swarm, though with small expectation of their getting through the winter. I am happy to say, however, that on examining the hives last week I found them filled with comb (except a portion of an end bar) and a good stock of honey still remaining. They now appear very strong and active, and there seems to be a good prospect of their doing well this summer. Though both stocks were put into hives of exactly the same construction, and each supplied with guide-comb, one has built from one bar to another, while the other has made the combs straight along the bars as intended. I should add that both hives were well fed with syrup during August and September and part of October.—F. S. E., *Epsom*.

WINTER FEEDING-BOX FOR BARLEY-SUGAR.

The sides of the box may be ½ inch deal, the bottom ¼ inch ditto. Two ¼ inch strips of deal, 1



inch wide, are tacked to two of the sides of the box, and stand ½ an inch above the sides; a hole ¾ inch diameter is made in the centre of the bottom of the box, which is six inches square. A piece of glass of exactly the same size is laid over the box and kept in position by the two side strips, and above the glass, a piece of ¼ inch board, with a stud to lift it by, covers all. The box, with the necessary supply of barley-sugar, is placed over the feeding-hole in the quilt, and well covered with carpet or coarse flannel. The bees soon find their way into the box, and when all the food is consumed, all or most of them go down into the hive. If the carpet and wooden cover are removed, it can at any time be seen through the glass when a fresh supply is required, and thus the lifting of the quilt obviated and exposure to sudden cold prevented.—J. H., *Vale of York*.

PARAFFIN DESTRUCTIVE TO ANTS.

I have heard complaints from time to time about ants attacking the hives, and in fact have been much troubled myself, but found last season, that a dash of paraffin in a can of water poured at the feet of the stands completely checks them. It requires to be repeated every few weeks.—Farnham.

SUPERS WANTED!

If any brother bee-keeper has a few nice-looking supers of honey still to dispose of (say of 2 lbs. or 3 lbs. weight each) and is willing to send them to undersigned for sale at a Church Bazaar in Chester, on the 22nd of May, they will be heartily received; a moderate price must be put upon them, and what are not sold will be returned to the owner, carriage paid.—W. M. Lightfoot, *York Villa, Liverpool Road, Chester*.

Specific for Bronchitis and Asthma.—Mr. G. A. Sala, in a recent *Illustrated London News* 'Echo,' states that an unfailing source of relief from the agonies of bronchitis and spasmodic asthma will be found in the following specific:—'The juice of two lemons which have been warmed in the oven to dry the skins, four ounces of the best honey, two spoonfuls of the very finest Florence oil. Mix carefully, put in an earthen jar, which keep covered, and swallow a spoonful when you feel the fit coming on.'

CHATS ABOUT BEES.—No. I.

By W. Raitt.

April, 1878.

Apiarian. Good morning, John. Have you been taking a peep at your bees?

John. Yes, master. It is such a pleasure to get out from the stool to see the busy little creatures. I have just been thinking that if I could persuade some of my mates to come along at their leisure hours and see my pets, it would be vastly better than loafing about the tavern, bamboozling their brains with drink, and getting sore heads for their pains.

Ap. Then you find real pleasure among your bees?

John. That I do, sir, and profit too. I always liked my bees, but since you prevailed on me to put them into the bar-frame hives I have much more delight in them. It is so interesting to lift a bar and see the queen and her attendants at any time, the eggs and grubs of every stage, the honey, and the pollen.

Ap. And what may have you learned from your inspection this morning, John?

John. Well, sir, I was a little anxious about this particular hive because I had not seen so much life about it of late. I find, however, that being less strong in numbers than some of the others, and having a rare young Italian queen, there is so great a quantity of brood to cover that on chilly days they really cannot spare many out-workers.

Ap. I hope they have provision enough for so many young mouths.

John. Oh! I have helped them there. The bottle has never been off for a fortnight, and they have a good store of pollen.

Ap. Have you tried the 'Artificial?'

John. Ay; and a fine laugh my mates that have bees had at me at first. When they began to see their own bees a mile off going home with loads of *my* meal they altered their tone and declared I was a genius. They're all trying it now but that obstinate body, Peter Pryde, that thinks he knows everything. He says pea-meal is pea-meal, and that it is *wax* the bees carry on their legs. But here he comes. Good morning, Peter.

Peter. Good morning, John; good morning, sir. Have you been meddling with those bees again, John? You'll find them all dead some morning for your pains. Bees never do to be meddled with.

John. They're not very dying like yet, at all events. And since I got these bar-frames last spring I haven't lost a stock, which is more than some folk can say. Eh?

Peter. Well, I confess that I've lost the half of mine since autumn. But will die must die, you know; it can't be helped. Everlasting meddling won't help it, anyhow.

John. Hold now, Peter. I examined your skeps after your bees were dead, and I maintain they all died from want of timely meddling, as you call it. Two of them were starved to death—as light as a feather; the other lost its queen in autumn and dwindled away.

Peter. Away with your nonsense, John! How could my bees starve when I had a wooden trough in their floor-boards with meat in it all winter; and some left in it yet, I believe? As for the queen being lost, I don't believe in queens; at any rate, if it be true that bees need a queen, I've heard you say they can raise one when they choose. But how can you or any other body know if a hive dies for want of a queen?

John. Oh! that's easily explained. I found between the combs of your skep only half-a-dozen dead workers and about twenty *drones*. You never find drones in winter unless there is something wrong with the queen—dead or barren.

Peter. Well, John, you may be right, but I cannot see it. But how could it have been helped, as you say?

John. Easily, Peter. The skep I refer to swarmed last year, did it not?

Peter. Yes, in July.

John. Well, you should have examined it in September to see whether your young queen had begun to breed.

Peter. Oh! nonsense. How could I tell that?

John. Not very easily in your precious skeps. Still, you could have seen the sealed brood if there was any; at least, you would have seen the drones which were there after all other drones were massacred. With my hive I can tell in one minute whether my queens are all right, and I generally see them every time I want to. If one is lost, it is easy to supply another, especially in autumn when condemned swarms can be easily obtained. The bees and queen can be saved and joined to your queenless stock.

Peter. I have always devoted such to the sulphur pit. I don't believe in doubling the number of mouths to feed. What do *you* say to that, sir?'

Ap. Undoubtedly John is right. The queen-bee is the mother of all the rest, and the loss of her in autumn or winter means the loss of the stock unless you do as John suggests. Then it is a mistake to suppose that a stock so strengthened will cost so much to bring it through the winter. The necessary heat is generated by the increased number, and proportionately *less* honey is consumed as heat-producing food. No doubt a little more is consumed by the united stocks than if one of them had been destroyed, but this is more than made up for by their increased value in spring.

Peter. You should know best, sir. But I always thought that workers bred workers, queens bred queens, and drones bred drones.

Ap. Nonsense, Peter. You must really study the natural history of the bees, or you will never make a bee-keeper.

John. Ay, Peter, that's it. But come and see my stocks. There, see how they are pouring out and in. How are yours for numbers?

Peter. Well, yours are maybe ten to one of mine, but I'll perhaps have swarms as soon as you yet.

John. I doubt that; but it's not swarms I want this year, it's honey. There's No. 1 ready for supers now that the fruit-blossoms are coming out. Had you any fruit-blossom honey?

Peter. How could I know? It's all mashed up together when the skeps are put down.

John. Well, here's a sample of last year's fruit-blossom honey. I set it aside in this glass, intending to feed it back to the bees, as it was not to my taste—too sweet and sickly like. But after standing all this time it has so greatly improved—taste it—that I think I never tasted finer.

Peter. It is very fine indeed. How do you account for it, Mr. A.?

Ap. It has just ripened, I should say. The excessive sweetness has developed into a piquant acidity that makes it very palatable while the peculiar aroma of the flowers has been well retained. Then you see it has thickened into a greenish semi-transparent mass, while the excess of water has floated to the top. By pouring off the thin part and filling up with thick from another jar, I should say that glass ought to fetch two shillings a pound in the market.

Peter. Well, I confess you beat me there. But what do you think of John and his brose-meal, sir? It looks ridiculous.

Ap. Look here, friend; keep your eye on these black bees among the shavings. They are not John's bees, as his are all Italians. There now, they are leaving with their loads; they are over the hedge to your hives, I believe. Yes.

Peter. I have a mind to go and see. Will you come round, sir?

Ap. With pleasure. There! just as I supposed, one after another is going in with a load of John's meal. I think you owe John a vote of thanks for feeding your bees.

Peter. Well, to tell the truth, sir, I don't give my bees much attention; but I begin to think that John is right after all. It seems to me that the bees must make some use of the meal or they would not take it.

Ap. Of course. They use it instead of natural pollen, which you thought was wax, to feed their young. They themselves live chiefly on honey; when either honey or pollen is scarce they will take sugar or meal as a substitute.

(*To be continued.*)

EXPERIENCES OF A WARWICKSHIRE BEE-KEEPER.

During the winter of 1857 I was looking over an old *Encyclopædia Perthensis*, and came across some articles on the management of bees, which, for the time being, so took my attention that I thought I should like to have some, that I might try to keep them on the humane plan recommended by the different writers therein. However, as time passed on, I had quite forgotten all about them, till the matter was brought to my remembrance in rather a curious way. We had a carrier in the village, who used to call twice a-week to see if anything was wanted from market; and it so happened that it was mentioned to my wife that they had had so many swarms of bees, making almost twenty lots; which being retailed to me, brought back what I had decided to do in the winter. So I went at once to see if I could buy a swarm, for the saying is, 'A swarm of bees in May is worth a load of hay;' and, of course, I supposed, the earlier the better. So I agreed with the old man for a swarm for fifteen shillings, which had swarmed about a week previous. I got him to tie them up in a cloth, and take them up to my house, as I dare not carry them, for I felt rather afraid, as I remembered that when I was a boy if I went into a garden where there were bees the owners would generally cry out, 'Mind the bees, or they will sting you!' After the old man got home he placed another swarm that had come that very day on the same stand that mine was taken from.* He ought to have told me that the one that had swarmed a week ought not to be moved such a short distance as only 200 yards. The next day it rained nearly all day, so that the bees did not go out, but the next after was fine; and didn't my bees go off down there and try and get into the hive that stood on the place where they had been used to going? I went down at night and saw that there had been hundreds slain. So my first swarm got on but middling at first, but it just managed to get heavy enough to stand the winter; if it had not I should not have fed them, as I did not know how; and the bee-keepers round here used to say, 'If they cannot keep themselves they may die.' Well, my stock managed to live through the winter; and in the spring, when the cold storms came on, and cut the bees down, I used to pick the pollen-laden ones up, and warm them, and put them in the hive.

Now to return to the first winter. I bought a stock of an old man over eighty years of age, and kept them at a distance of four miles from where I live, but often going over, I looked after the bees; and being anxious to prevent their swarming, made a doubling board with two entrances, and after letting the stock stand over them for a few days I moved it on one side; and as they had been hanging out ready for swarming, I placed a square hive with glass windows over the other, and the bees soon occupied it, and I was in great glee, thinking I had stopped them swarming. But lo! it was only for a day or two, for they did not build a bit of comb; and the next time I went I found they had swarmed. Well, these two lots stood over the winter, and I had a lot of swarms and casts from them, and it became a bad season; they built some comb, but I had no honey, and had not the sense to feed the bees, so the consequence was the whole of them died the following winter, my own at home included. I, however, wanted to buy some, but could not hear of any, and did not know where to advertise. This was in the early part of 1861, and as I was appointed enumerator for taking the census of our parish, I thought I would speculate again in bees with the money I had for this job, so after a while I heard of two stocks about three miles off, and I purchased

* The 'old man' was either hard pressed for stands, or he was very cunning. He ought to have sold you the swarm that came off on the day of your visit, almost all of which would (as you are now aware) have stayed with you.—Ed.

one for twelve shillings; and could have jumped for joy, for I was quite prepared to have given thirty shillings if he had asked me,* so I brought them home, and have never been without bees from that time. They did very well, but did not swarm till June following, though a few days after I had a cast, and all got enough to stand the winter; and then from those three stocks, in 1862, I had swarms and casts and maiden swarms, and took off some nice little boxes of super honey. Now, as I was first in our neighbourhood to use them (the supers) the folks said my bees would never do any good, as I 'messed' with them so. But, however, what with supers and run honey I had more than 1½ cwt., which, for a novice, was not much amiss; and, as I managed to sell some of my super honey at 2*s.* per lb., some of our folks thought rather differently, and began to adopt my plan, but I never could dissuade them from killing the stocks for honey. I used to fumigate mine with puff-ball, as, never having seen anybody drive bees, I did not think it could be done, though I had read of it, but could not understand turning a stock of bees right up, and frightening them out.

In the meantime I got all the books on bee-management I could find, for having 'bee on the brain' made me do all I could to learn their habits and management. No one must suppose that I got scot free all this while from stings, for I had many a one—more than I liked, but somehow I could not help 'fadding' among them. I heard of another old 'bee-man,' as he was called, who people said kept bees in boxes with glass windows. So, of course, I had to go and see him and his hives; he used to get some nice supers in glass, from a few hives, and has generally done so up to this time, and he is now eighty-five years of age. He had a stock of Ligurians of me last summer; he was delighted to tell me the first time he saw some young ones out at the entrance of the hive. But to return: about 1862 or 1863 I fumigated two or three stocks of bees at the deer-keeper's at Stoneleigh Abbey, as I was allowed to have the bees for my trouble, so I brought them home in paper bags, and a fine song I had all the way. When I got home I put all three lots to an old straw skep that was full of old combs, but some were broken, and I fastened them in with sticks, and gave them some bits of combs from which the honey had been strained, and about 4 lbs. of sugar, and about 4 lbs. again in the spring, and they did very well, worked me two supers (?) horizontally on the board on which they stood through a little tunnel I made from the hive; and I think the stock hive was the heaviest I ever had, as it did not swarm, but it paid me very well for my trouble.

About this time I heard of Ligurian bees, and thought I should like some, and having to go to London I called at Neighbours' in Holborn, and asked the price of a swarm, and was told 5*l.*; so as I could not afford that amount I was obliged to be content with my sober, plodding English bees. As time wore on I used to get a few nice supers most years, but small, scarcely ever exceeding 10 lbs. weight. About 1870 I heard of a schoolmaster that had Ligurians, and walked over one evening, about five miles, to see them; but my ideas of what Ligurians were like, and what his were, were quite at variance. He told me that he gave a lot of money for a weak swarm, and had them from Manchester, but had difficulty in getting them strong at first, but he did manage it after a while, and sold his swarms at 30*s.* each: and from what I know of Ligurians now, those that I saw were nothing but hybrids, not a striped bee among them; and as he only had one lot, and sold his swarm and sent it away, he had not much chance to keep them pure.

About the next year, in reading the *English Mechanic*, I came across articles on bee management, and seeing inquiries about Ligurians and discussions as to their superiority over English bees, I again became very anxious to possess a stock of them, and noticing on the advertisement pages of the same paper Ligurian queens for sale by Mr. Abbott, I wrote to him to ask to be allowed to see them if I could get a chance; I received in reply an invitation, saying if I could appoint a time he would meet me: but as I could not do so I took my chance, and when I got to Hanwell I found Mr. Abbott, and he opened several hives, and showed me the queens, at which I was much astonished, as I had not the slightest idea that bees could be handled in that manner; however, I was so pleased with the beauty of the Ligurians, that I bought a swarm (to be made artificially), and had them put into a straw skep two days after, that I might take them home with me. They had been closed up ready for me in the morning, and about ten o'clock I took them *viâ* London to Leamington by a fast train, reaching home about four o'clock, having carried them four miles from Leamington. Imagine my dismay when I found three parts of them dead, and the queen among the number! Though it was in August it was one of the hottest days we had had all the season, and they were suffocated, though they had several openings with perforated zinc to ventilate them. I intended to have taken the bees out of one of my straw skeps, and then put the Ligurians to the hive of combs, as it was too late for them to build combs, even if they had been put into an empty hive. I sent the queen by post to Mr. Abbott, who kindly offered if I would send a stock of Blacks, he would take them out, and return me some Ligurians in their place; and I received them all right: but as I thought I should like to strengthen them up for winter, I added the bees from a hive that I saved from being killed. This was in September, and some of these black bees lived in that hive till the 30th of April following, but on the 1st of May all of them were gone, and they were all beautiful Ligurians.

During the winter I felt rather anxious about them, and as Mr. Abbott recommended a warm plate to warm up bees that had dysentery, I thought

* After I had bought these, what with one expense or another, buying stocks, swarms, &c., I had spent over five pounds before I ever got a pound of honey, and I used to often hear it said at home, 'I should think you are not going to spend any more money on bees.'—Author's Note.

I must try one. I made a rough box, and had a lamp and burnt it several nights, and thought I must lift the bees off one night at dusk; and, by some awkwardness of mine, I managed to get them (the bees) on me, and they crept up my leg, and stung me. I ran into the house, rubbing and fretting, while those indoors were laughing to see the capers I was cutting. And now, whenever I am asked about warming the bees up, it causes more than a smile. However, this same stock of Ligurians had been well stimulated, and was the first to swarm among all my lot. The queen fell to the ground; and, while I went to get my first bar-frame hive to put them in, she had scrambled back to the hive, and the bees came back, and were all over the stand, hive, and on the ground, too; and I being there with bare arms, and no veil on, having been impressed with the idea that Ligurians were so gentle that they would scarcely sting at all; I turned them over with my hands, hoping to have found the queen, but could not see her, so I must needs get a hand-brush to sweep them off the legs of the stand, but had no sooner touched them with it, than, Oh, mi! at me they flew, and gave me one on the bottom lip, and I 'cut' and put my head in a bush, and they after me. 'Never again,' said I, 'catch me hiving Ligurians without a veil.'* I scarcely ever used to put on a veil with my black bees when they were swarming. But, however, I was not going to be beaten. I got a veil and smoked them at night, and drove them out, as I would not be disappointed in having my first bar-frame hive stocked with a swarm, and those *Ligurians*.

Just about this time I came across Pettigrew's *Handybook of Bees*, and had some hives made of the dimensions he advocated: they were all very well for honey, and there was a good lot generally, but I soon saw which was handiest for me.

Whenever I went to London I used to try and see Mr. Abbott, and get some practical instructions; which he gave himself a great deal of trouble to impart, and kindly lent me volume after volume of the *American Bee Journal*, with which I was very much pleased and instructed. Soon afterwards Mr. Abbott started the *British Bee Journal*, and of course I was a subscriber. Then we had the honey extractors in use in England; and Mr. Symington, of Little Bowden, Market Harborough, kindly permitted me to visit him, and see his bees and extractor, with which I was very much pleased, and went home highly delighted with all I had seen, and decided to make an extractor for myself, which I did; and it answered first-rate. Talk about honey, our parlour was honey everywhere, what with slinging out of drone-combs, and transferring out of the Pettigrew hives, we had enough of it, and so I decided to call my cottage 'Honey Cott,'—which it will, I hope, remain.

Perhaps at some future time I may resume my experience, but for the present must close.—A WARWICKSHIRE BEE-KEEPER, *Weston, Leamington*.

* The mistake was in using a brush—it rolls and presses the bees so much that they eject their sting-poison, the odour of which makes them furious.—ED.

BEES AND BEE-KEEPING.

At the monthly meeting of the Ipswich Scientific Society, on Wednesday, Mr. Joseph Smith, jun., of Rise Hall, Akenham, who has devoted much time and attention to the cultivation of bees, read a valuable paper on bee-keeping, containing suggestions which will be found worthy the notice of both cottagers and apiculturists. In the absence of Mr. Branford Edwards, the president, Dr. J. E. Taylor presided, and spoke of the value of special papers by men who have devoted special consideration to a subject.

Mr. Smith commenced his paper with a few general remarks upon bees, noting the introduction into this country of the Ligurian, or yellow Alp bee, the Carniolian or Krainer bees, and the Smyrnian and Cyprian bees. He confined his attention to the common black or hive bee, and gave an interesting description of its formation and mode of breeding, and the manner in which the wax is formed, and the honey deposited. Coming to the keeping of bees, Mr. Smith said the simplest plan was to have a hive composed of straw, or a combination of wood and straw. A wooden hoop should be worked into the lowest rim of straw, so that the hive may stand evenly on a floor-board of stout well-seasoned deal, and a sloping entrance made by sawing a piece of wood out of the board, about three inches wide by $\frac{3}{8}$ of an inch deep. This will prevent the entrance of many of the enemies of bees, and by reason of its sloping outwards it would facilitate the removal of *débris* and dead bees. A hole about four inches in diameter should be made in the centre of the top, which will be useful either for supering or feeding. The hive should be set on a block about three feet from the ground, and the whole protected from the weather by a bread-pan, No. 3. The best situation is in a cool and sheltered part of the garden. If the sun's rays fall upon the entrance, bees are often tempted out while the wind is cold, and after flying a few yards are benumbed and lost. Supposing the apiarian has some good stocks of bees and that the hives begin to show signs of overcrowding in the late spring or early summer, it is time to attempt to get some honey. For the simple form of stock hive, it is best to get the honey by supering. The opening in the top should be surmounted by a glass or box, or even a clean flower-pot, and in most cases the bees ascend at once and commence to fill it with comb. Probably the best form of hive is the bar-frame or moveable bar-hive. The bees build their combs on moveable bars, and the honey can be taken at the will of the master by simply taking the top of the box off and replacing the full bar by an empty one. But in practice it was sometimes found that bees build from corner to corner of the hive instead of on the bars. When a super or nadir is full of honey, it is very easy to remove the bees by taking it in the middle of the day and placing it under a shade for a few minutes. If it is desired to keep bees so that all their operations can be seen, a glass hive must be used so as to admit of only one comb being built, but in that case no profit must be looked for. After deprecating the plan of burning as cruel and unnecessary, Mr. Smith pointed out the various modes by which honey can be taken. Chloroform or puff-ball will do, but he did not recommend their use excepting in special cases. A better mode is to drive the bees. To do this, protect the head, face, and hands from all possibility of stinging, and provide an empty skep and a long towel. Remove the full skep from the floor-board, and take it away about 30 yards, then invert it and place over it the empty skep. Tie the towel at the junction, and then gently tap the full skep, and the bees will ascend into the empty one. Artificial swarms may be obtained by driving in May or June, but he did not recommend this interference. In the case of a swarm in September unite it with a weak stock. For feeding bees Mr. Smith recommended a solution of 3lbs. of the best lump sugar in 2lbs. of

water. Barley sugar made from sugar and vinegar is a convenient food for winter, but the apiarian ought to feed each hive up to its required weight, not less than 15 lbs. before November. The removal of bees is a bad plan, but if done at all further than a yard it should be for half-a-mile, as they get into different circles of flight and are not lost by flying back to their original position. In conclusion, Mr. Smith referred to the important relations of bees to flowers. It is certain insects cannot live without flowers, but just as certain that many flowers would cease to produce seed if insects, especially bees, did not visit them. There are a great many flowers to which the fertilising pollen is carried solely by bees. Most of the clovers, the pea, and the bean, and other most important crops to the farmer, are largely dependent on the visits of bees for fructification. Now there is often a failure, or partial failure, of these crops in certain districts, which is unaccounted for by the weather or the state of the soil, and Mr. Smith had no doubt that the scarcity of bees largely contributed to that result. Peas and beans often bloom well, but if any blossom is unfertilised it is useless. We never expect but a small proportion of seed from clover, and often a luxuriant crop of stalks and heads yield scarcely sufficient seed to pay for the labour of harvesting. The consequence is that beside the loss to the farmer the country has to import much foreign seed. This loss might be obviated to a considerable extent if bees were more generally kept. There ought to be hundreds of hives within a radius of a few miles of a clover field, whereas the present case is that you may sometimes take a mile radius without encountering a single hive. Mr. Smith looked upon this as a much more important question for the country generally, and especially to the farmer, than the dreaded invasion of the Colorado beetle. It was a well-known fact that the early settlers in New Zealand could not get their clovers to produce seed until they imported bees. Thus we may reasonably argue that if we kept more bees we should get better crops. He had often been struck with the exceptional fertility of flowers in the neighbourhood of beehives. In such situations he had seen blossoms in which apparently every flower had been fertilised. Humble-bees often bite through the flower of the bean, in order to reach the honey, and the hive-bee has been detected doing the same thing with the fuchsia. From these facts Mr. Smith argued that bees ought to be more largely kept, and then the country would reap the benefit of saving the money usually spent for the importation of wax and honey, and also the far greater advantage of having better crops. He therefore hoped that Suffolk or Ipswich would soon start a club for bee-keepers. In the East of Scotland, Aberdeen, Exeter, and other places, there are societies of 200 or more bee-keepers. Meetings for discussion are held, and exhibitions of honey, hives, &c., arranged, when medals and prizes offered by the central association in London are competed for. If this were too much he hoped the Horticultural Societies would offer plenty of inducements, especially to cottagers, to keep bees.

In the discussion which followed the paper, Mr. Budden referred to the statement recently made in the newspapers that the Australian bees had struck work, finding that the flora continued throughout the year, and that the storage of honey for winter was unnecessary. Dr. Taylor stated that the bees imported into New Zealand had died, and that now the clover grew there most luxuriantly, but did not seed, and seed had to be annually imported. It was proposed, instead of the common bee, to try the red-tailed humble-bee in the colony, being hardier, and equally useful for the purpose of fertilising the flowers. Dr. Taylor agreed with Mr. Smith that the wealth of this country would be largely increased by the greater cultivation of bees, and denounced the practice of destroying them in the hive as unwise and barbarous. Both Dr. Taylor and Mr. Smith spoke highly of the intelligence of bees, and their capacity for adapting themselves to change of circumstances.

At the close, a cordial vote of thanks to Mr. Smith was moved by Dr. Elliston, seconded by Mr. E. R. Turner, and carried with applause.

A BEE-FARM IN AUSTRALASIA.

Accepting an invitation kindly sent by Mr. H. J. O'Ren, one of our staff paid a visit on Tuesday to his extensive apiary at Roseland. The establishment Mr. O'Ren has at his charming homestead for the production of honey fully entitles it to the name of a bee-farm. Speaking within bounds we believe that there is no larger one in Australasia: at any rate we can safely say that no greater quantity of honey is produced. Mr. Bryant, manager for Mr. O'Ren, very kindly showed our representative round the farm, and we must say that more complete arrangements for the production of honey we have not seen. There are no less than 418 hives, all filled with the busy workers. These hives are arranged on benches, with about twenty to thirty on each bench. The homes for the bees are made on the premises, by Mr. Lawson, a carpenter specially engaged to make the hives and honey-boxes. Besides Mr. Lawson, a person to tin the honey and make the wine, and generally look after the hiving of the bees, is permanently engaged in the person of Mr. Rowland. We naturally asked Mr. Rowland if the bees ever attacked him, but he says that it is very rarely he is stung, except perhaps when robbing the honey. Like the eels who get accustomed to skinning, so with the honey-taker, he never notices an occasional sting or two. The first room we were shown into, is the one where the comb after being taken from the hives is placed into the large troughs, filled with perforated zinc sieves. The honey drains from the comb into the troughs, and is then conveyed through pipes to the tinning-room, where it is 'racked off' from the large vats. This room, like the other, is situated on the banks of the river, under the shelter of some drooping willows. In this room the honey is put into the tins and then the lids are soldered on, ready for export. We were informed that now and then this room becomes rather a lively corner, as the bees rush at it, and make vigorous attempts to regain some of their stolen property. Mr. Rowland says he not unfrequently has to clear out and evacuate the situation till the invaders see fit to retire. Mr. Bryant estimates that this year he will have at least ten to twelve tons of honey to send away. Now, when we state that the price easily obtained for this is 75*l.* per ton, it will be seen that a large revenue may be obtained from the keeping of bees. But, apart from the honey produced at the farm this year, there will be 315 gallons of wine and a large quantity of wax, valued at 200*l.* The wine made from the honey is of a most pleasant flavour, and very insinuating, for two or three glasses of it will render the unsuspecting drinker unable to say 'truly rural.' It is computed that the revenue derived from the bee-farm, which, by-the-way, is only 52½ acres in extent, will total up to the respectable figure of 1670*l.* Now, as an old squatter observed, this beats sheep-farming.* No scab, no drought, and no anxiety as to the rise or fall in price. We must confess that the figures we have quoted—and we are assured they are within the mark—argue most favourably for the apiarist as against the sheep-farmer. Mr. O'Ren certainly deserves every credit for the per-

* This may beat the sheep-farming in this way: but how about the Moira bug, one of the most destructive insects that can get at a hive, as it is encased in a hard, smooth, shiny coat that no bee can sting; and besides this foul brood is very prevalent; also the wax-moth: but they don't seem to see these things here.—F. Parish.

sistent manner in which he has worked at this industry, and now that he has brought his labours to such a successful issue, we trust he will derive a handsome remuneration for his outlay. The production of honey is attended in the first instance with considerable trouble and involves the exercise of an immense amount of patience, and the expenditure both of much time and money; but when once brought to the pitch of perfection, as Mr. U'Ren has done, it becomes both instructive and remunerative. We cannot conclude without expressing our obligations to Mr. Bryant for his courtesy in showing our reporter round the farm, and affording him every information.—*Poverty Bay Herald, Feb. 19th*, 1878.

SKEPS AND BAR-FRAME HIVES.

Paper read before a Meeting of the Members of the East of Scotland Beekeepers' Society January 1877.

Mr. President and Gentlemen,

In discussing the relative merits of skeps and bar-frame hives, I wish you to understand at the outset that there are only two distinct principles known and recognised by bee-keepers, on which all domiciles for bees are founded. These are,—hives in which the combs are fixed by the bees to the top sides and ends, and from which they cannot be removed without damaging the structure and disarranging the dwelling of the bees; and hives in which the combs are built in light frames of wood, and so placed in a case of wood or straw that they can be lifted out at pleasure without any damage either to the bees or their fabric.

The common straw skep is an example of a hive with fixed combs, and the common bar-frame hive of one with moveable combs.

Let us also understand that there is nothing in either of these principles that will in any way assist the bees in storing honey or raising brood, for the natural laws by which they are governed are immutable and fixed.

Their instincts and habits lead them to select a place of abode that is protected from the weather. They will live, thrive, collect, and store honey equally well if all other things are right with them in a hole in the rocks, as the Israelites of old found them in the hollow of a decayed tree in the woods, in the wicker-work hives of the Egyptians, in the clay and mud hives of ancient Greece and Rome, in the hives made of the bark of trees of the savages of Equatorial Africa, in the straw skep of our own country and the Continent, the bee-gum of America, or in the wooden box and bar-frame hives of both Europe and America.

Seeing, then, that we cannot teach or improve the habits of the bees in the selection of dwellings, nor make them in any way more industrious, it is evident that the preference ought to be given to the hive which best suits the wants of its inhabitants, and aids and advances the interests of the bee-keeper.

Since the invention of the bar-frame hive, apiculture as a science has made immense progress. By its use all the mysterious wonders of the inside of a hive have been revealed. The common skep with its fixed combs is a sealed book to the bee-keeper, but the bar-frame hive in which each comb is moveable and can be raised and lowered at will without any harm either to the bees or their works, is an open book, by which, so to speak, we can turn all the leaves, and thereby acquire a thorough knowledge of its contents. Nothing is left to guess or chance, all is in the power of man. With fixed combs the bee-keeper is not master of his bees, he is their humble servant, obliged to yield to all their whims. With moveable combs he is absolute master of his bees, he directs and regulates everything except the production of honey, which is controlled by the state of the weather.

Straw skeps of suitable size and shape properly treated and managed on humane principles do very well, and as almost every bee-keeper has skeps, a knowledge of the best mode of management, and as a comparison to similar working of the bar-frame, will be useful.

In straw skeps bees often cluster outside in idleness for days before swarming naturally, and in such cases it is better to drive the bees out and form an artificial swarm. The *British Bee Journal* from which I have extracted the following condensed description of driving and making artificial swarms ought to be in the hands of every one who keeps bees for pleasure or profit:—

'The whole secret of management in driving, and, in fact, in all other operations with bees, is expressed in Langstroth's three principles:—"1st. A honey-bee, when filled with honey, never volunteers an attack, but acts solely on the defensive. 2nd. Bees cannot under any circumstances resist the temptation to fill themselves with liquid sweets. 3rd. Bees when frightened immediately begin to fill themselves with honey from their combs."

'In the middle of a fine day blow a puff of smoke into the hive to be driven, gently lift it off its stand and carry it a few yards away, now turn it up, placing it so that the ends of the combs will be on a slope; place the empty skep, into which the bees are to be driven, with its edge resting on the highest point of the lower hive. The simplest and readiest means of fixing it in position is with hair-pins, two being thrust into the upper hive, and two linked through the loops into the lower hive. An empty skep should be placed on the stand from which the stock was taken, to amuse the bees returning from the fields during the operation, and to prevent them going into the neighbouring hives.

'Having all ready, begin by drumming gently with the hands on the lower hive, and in a few minutes the bees will begin climbing into the upper hive. Keep a sharp look-out for the queen going up, for it is essential to know for certain that she is present with the bees.

'Care and judgment are, however, required in the disposition of the hives after the swarm has been made. Should the driven hive be bare of bees, and the swarm strong enough, the latter should be sent to a distance of about a mile, and the old stock returned to its stand, to be replenished by the returning bees. Should it be found that the whole of the bees are barely sufficient to establish the swarm and protect the brood in the old stock, they should all be driven out to form the swarm, which should be placed on the original stand, and the stock hive, without any bees, placed on the stand of the next strongest stock, removing the latter to a third stand a few yards off, so that *its* returning bees shall populate and hatch out the brood of the driven stock, and raise a new queen therein. Stocks from which swarms have issued contain large quantities of mature brood, the hatching out of which speedily recuperates the strength of the hives, and in a few days they become apparently as populous as ever.

'There is no part of the modern system of bee management in which the advantages of the moveable-comb principle more particularly assert themselves than in the multiplication of stocks by artificial swarming. Anyone who can distinguish a queen-bee from a worker or drone may perform this operation with perfect impunity, and with certainty of success, provided the stock to be operated on is sufficiently strong, and the season not too far advanced. It is only necessary to take the comb of brood and bees on which the queen is found, and place it in a hive similar to that from which it was taken, and set it in the place of the stock operated on, removing the latter to a new stand.

'The frame of comb, &c., should be placed near one side of the hive, one empty frame intervening, and the other frames having been properly placed the hive should be covered down. The old stock should also be closed, a frame of empty comb being placed at the side of the hive in lieu of the one abstracted.

'The result of these proceedings will be that almost every bee capable of taking wing will join the swarm on the old stand, while the young bees in the old stock will hatch out the brood and raise queen-cells, and provide themselves with a new sovereign .

'Almost every authority urges the advisability of obtaining swarms as early as possible, and this so strongly that many

are induced to form them artificially before the stocks are ripe and often to the great detriment of both. Four things should coincide ere the making of artificial swarms is determined on, viz.: the stock should be very strong, the weather should be fine, there should be abundance of honey, and the presence of normal drones. Still a word of caution. Do not allow the newly acquired ability to make swarms induce you to multiply your stocks too often. Multiplication in this instance means *division*, and division carried too far may necessitate the addition in autumn of numerous weak stocks to form one capable of standing the winter next ensuing.'

All who wish their bees to be prosperous and profitable ought to check swarming as much as possible. Excessive swarming and subdividing so weaken the stocks, and make them mere handfuls, that they are not able to collect sufficient stores for winter; hence the cause of so many losses in the winter and early spring by those who practise swarming as *the* mode of successful management.

The cause and effect of this fact have been known for years, for in the beautiful poem by Dr. Evans, first published about eighty years ago, and now republishing in the *British Bee Journal*, he says:—

'Oft when with young o'erflows the regal dome,
And each fair queen pants for a subject comb,
Swarm after swarm, successive myriads drive,
Draining of food and force the parent hive.
Ah! soon, ungrateful children, shall ye wail
That pleased ye listen'd to the flattering tale,
And mourn repentant, now, alas! too late,
Your scanty numbers, and enfeebled state.
When mellow Autumn binds her golden sheaves,
And bleak winds whistle thro' the wither'd leaves,
From Flora's fading form in vain ye try
To cull for wintry dearth a short supply;
Feeble and faint, ye court the cell's deep gloom,
No well-filled garner, but a dreary tomb.'

If honey is our object swarming must be checked as much as possible, and even in the best of seasons none but first swarms taken. To prevent second swarms coming off, skeps can be turned up after the first swarms have left, and all the queen-cells cut but one. It often happens, however, that some of the queen-cells are so placed in the skep that they cannot be got at without damaging the combs. In such cases, the best plan is—wait till the princesses begin piping, next morning, turn up the hive, and drive an artificial swarm, placing it on the stand of the stock, and removing the stock to a new stand. During the day the most of the bees left in the stock will return to their old stand and join the swarm which so weakens the old stock; that they will give up all further desire to swarm, and they will destroy all the royal cells but one, if there is not a second princess hatched out in the interval. On the morning of the second day return the stock to its original stand, and place the swarm a little distance from the side. The majority of the bees will return to their old stand, and the queen with a handful of bees will remain in the swarm, which can be kept to unite to a queenless stock, or to replace a queen that is getting too old. This operation takes some time to perform, I admit, but it is the most certain way to prevent second swarms in skeps, besides it has the advantage of getting a young queen to be kept on hand for any emergency.

With the moveable comb principle it only takes a few minutes to make second swarms impossible. Open the hive five or six days after the first swarm has left and cut out all the royal cells but one.

Every bee-keeper knows by experience that weak stocks are invariably a source of more loss than profit. The honey season is of short duration, and large and populous hives only are those who can take full advantage of it. Those that are weak and few in numbers at the beginning of the season generally only recuperate and gain strength when the harvest is about finished; that is to say, when it is too late to be of any advantage to the proprietor. With skeps, one way of strengthening a weak stock is by exchanging places with a strange one. This is to a certain extent 'robbing Peter to pay Paul,' besides the danger of the strange bees encasing and killing the queens of the different stocks.

The operation of strengthening and equalising stocks in bar-frame hives is very easy, and success is always certain.

If the feeble colony has no queen, take one or two combs with brood and hatching bees from a stock well able to spare them, and exchange these for empty combs from the weak stock.

If the weak stock has a queen and but little brood and few bees, give them a comb of sealed brood only, brushing the bees off the comb in front of their own hive. Two days after, when a good many young bees are hatched out, give them other two combs similar to the first, and in other two or three days as many combs as are necessary to furnish the whole hive, and all with sealed brood, but without bees. The reason for giving them sealed brood only, is that it requires no care in nursing, and adding them at intervals thus, is to have sufficient young hatched out to cover the brood and keep it warm. The hives from which the frames were taken soon recover the loss of brood when the empty combs from the weak stock are given them.

In this manner feeble colonies are not only saved, but at once got into a condition to be able to take full advantage of the flow of honey. This operation should never be neglected with hives that may from any cause have lost a great part of their population in winter.—J. S., *Arbroath*.

(To be continued.)

Apiarian Dinner.—The apiarians of North Ayrshire, to the number of eighteen, met at dinner in the Turf Inn, Dalry, Ayrshire, on Saturday afternoon, for the purpose of taking into consideration the best means for preventing adulterated honey from finding a place in the market. Mr. Robert Graham in the chair, and Mr. J. Anderson, croupier. After an excellent dinner, and the usual loyal and patriotic toasts being disposed of, the object for which the meeting was convened was then discussed. A conversation also took place regarding the best arrangement of hives for the ensuing season. Representatives from Kilmaurs, Kilwinning, Stevenston, and Paisley, were present; letters of apology from Falkirk and Fenwick were read to the meeting. It is perhaps worthy of notice that Mr. J. Anderson and Mr. T. Young, two of the oldest bee-fanciers in Ayrshire, took part in the proceedings, their respective ages being eighty-two and eighty-five years, and they having kept bees considerably over half a century. The meeting throughout was of a lively and enthusiastic character.

Echoes from the Hives.

The Crawley and Ifield Horticultural Association have only one unfavourable circumstance to record—but unfortunately that is an important one—namely, that the weather upon the show day was so miserably wet that the attendance was very small, so small indeed that though the show was kept open for an additional day, in the vain hope that the rain might stop, the total amount taken was only about 9*l*., this will account for the committee being left with a deficit which will be seen on reference to the balance-sheet. [We had the honour and pleasure of attending this show as bee manipulator, and more wretched weather we never experienced. Our junior attended on the second day, but the downpour damped every one's ardour, and the result was as is recorded.—Ed.]

Chester.—'Weather here still cold, east winds. Bees all right, but had to feed all winter.'—W. M. L.

Belvoir.—'The recent cold weather has not been good for the bees, but I am glad to say most of those in the neighbourhood who keep bees have been feeding, so their hives will not suffer much. We have some of the old school yet about, but I have given up all hopes of convincing them, by telling them of the advantages of the bar-frame and management, as I find I do no good; but am leaving them to see for themselves that improved methods bring increased produce.—T. Roberts.'

Wokingham, Berks.—'I herewith enclose 10*s.* 6*d.*, my subscription to *B. B. J.*, and trust it will continue in the same competent and excellent editorial hands; I also trust the number of subscribers and readers, too, will be more than doubled during the coming year.—J. G.'

Ivybridge.—'Five hives that I began the winter with are all doing well: plenty of breeding going on. I find *Berberis Fortune* a useful shrub for the early spring, but have not seen it mentioned in lists of bee plants.—J. D. P.'

Wandsworth.—'My bees are well, they have been occasionally out of the hives every month since September and no loss of life has occurred. I saw drones being thrust out of one of the hives March 10th. I have fed my bees, more or less, all winter. Other apiarians in the neighbourhood have suffered considerable loss.—D. M.'

Blair-Athole, April 20th, 1878.—'There is "woe and lamentation" amongst the bee-keepers in this neighbourhood. The small straw "house" can be seen by the dozen without its occupants. Matters are, however, different with those who use the frame-hive; for seldom at this early date had we better prospects of early supers—or swarms, if you will.—Angus Cameron.'

Tunbridge Wells, April 23rd.—'My bees have not increased as I expected, as I had only two swarms last summer from my four hives. We took about 50 lbs. in all from the six hives. All the honey granulated, and looks so white that a lady, who had some of mine from a friend to whom I had sold it, was quite sure that it must be adulterated with a large quantity of flour. I had a small packet of seeds from you last spring; the burnet and alyssum were of no use whatever, and the balm never came up. The two former were quite neglected by the bees. They are now very busy with the wall-flowers, which are of a fine dark colour, and look very handsome in the garden.—P. H. F.'

Queries and Replies.

Query No. 237.—*Queenlessness.*—Should be very much obliged if you would say in your next *B. B. J.* what is the cause of one stock not carrying in pollen when the others are busy at it. I took a lot of moth grub out the other day: had that anything to do with it, or is it queenless?—S. Clear.

Reply to Query No. 237.—The probability is that the stock *is* queenless (see page 210 of April No. of Vol. V.) It is, however, possible that wax-moth worms may have obtained the mastery, and that the bees are too weak in numbers, and the combs too much damaged by the worms to permit of breeding going on, and hence the inactivity.—Ed.

Query No. 238.—Do you know of any objection to zinc as a material for making a honey-extractor of?—T. Roberts.

Reply to Query No. 238.—The chief objections to zinc are, that it is corrosive, and its oxide poisonous, and that in use it is a dirty metal, soft, and highly expansive.—Ed.

Query No. 239.—In putting drone-comb into supers, how far should the comb be apart—that is, from centre to centre? And will they lengthen the cells as they do in worker-comb?—R. B., *Kilkenny, Ireland.*

Reply to Query No. 239.—Drone or worker-comb, or comb foundation in supers, should be put about two inches apart from centre to centre. The bees will lengthen the cells so that only about a quarter of an inch of passage-way will be left between the combs when they are full and sealed over.—Ed.

Query No. 240.—1. Could you kindly give me in next *Journal* some information about the bee-plant *Arabis alpinus?* G. A. R.—*Reply.* It is a very hardy plant, will grow almost anywhere, and will spread itself into large patches in a very short time. It is best propagated by layering or dividing its clumps, but may be readily grown from seed.

2. What is the price?—*Reply.* Seed is about 7*s.* per ounce; plants in autumn about 5*s.* per 100.

3. When should I sow?—*Reply.* From April to June.

4. On what kind of soil?—*Reply.* Any light loam or sandy soil. The seed being fine cannot well get through a stiff soil.

5. When will it bloom?—*Reply.* Ours has been in blossom more or less the whole of this year, and is now, April 24th, in full flower, and will probably continue so for a long time.

A few short hints would much oblige.—*Reply.* Plants in autumn will, we think, afford most satisfaction. Plant it in beds about 2 feet apart, so that bees may find a quantity of it without having to roam far away in search of it. Scattering bee flowers or plants is a great mistake.—Ed.

Query No. 241.—Would you kindly answer me in your next Number the following?—I have purchased a stock of bees in a straw hive, and I should like to have a swarm from them. Should I put a super on before or after they swarm? And is a wooden super good?—A Beginner, *Gleadless, April 20th.*

Reply to Query No. 241.—Putting on a super will probably delay swarming. Wooden (with glass) sectional supers are best for all puproses, and by far the cheapest in the long run.—Ed.

Query No. 242.—My bees have all wintered well, thanks for the information received from *British Bee Journal.* My bees are all black. When is the best time and the best way to introduce a Ligurian queen with the best chance of being successful?—D. M. R. *Baldover, Dundee, April 12th*, 1878.

Reply to Query No. 242.—See directions on p. 24, Vol. V.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Ignoramus (*Wellington, Salop*).—Sectional supers are the best for all purposes. Your stock being heavy and populous requires no feeding just now. It is yet too early to expect drones. For driving, artificial swarming, &c., see Leaflets, free for 1*d.* stamp. If honey is required, super at once. Subscribers to the *Journal* have copies free by post. The book you have is useless in the present day—it was simply *compiled* to sell.—Ed.

North Street, Waring.—Vols. III., IV., and V. of the *British Bee Journal*, are in print, and may be had at our office for 6*s.* per volume unbound, or 7*s.* 6*d.* bound in cloth. Each volume is full of sound practical information, and is invaluable to beginners. Vols. I. and II. are 'out of print,' and realise from 20*s.* to 30*s.* per volume; no small testimony to the value of the matter therein contained, and not a little flattering to the Editor.

Anyone wishing to have a packet of Melilot Clover or Phacelia seed may send a stamped directed envelope to William Hunt, South Warnborough, Winchfield, Hants.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 62. Vol. VI.] JUNE, 1878. [Published Monthly.]

Editorial, Notices, &c.

JUNE.

May has at length dragged itself to a close, after vindicating to the full the value of the warning which we gave on page 4 of the *Journal* for that month. We then said that 'a fortnight's wretched weather' might be expected about the middle of it; and, almost to the minute, it set in on the 15th, and continued more or less boisterous, wet and cold during nearly the whole of its remainder, only occasionally varied by thunderstorms, short gleams of sunshine, and early morning frosts. In such weather the early fruit-blossoms having departed bees have found great difficulty in obtaining sufficient provision for their offspring, and in many places white brood was thrown out of the hives, to the dismay of those who will not believe that the incoming of honey is the touchstone by which the bees gauge their ability to increase and multiply with safety to their community. Dead queens on alighting boards have astonished several owners of bees, and alarmed them for the safety of their colonies; but, in our opinion, such instances are but the result of delayed swarming, which has permitted young queens to mature, and either themselves escape or drive their mothers from their hives, to fall victims at the doors of those at which they sought refuge. Happily, the time has not been one of drought and blighting east wind; but, on the contrary, the rains and general mildness of the temperature have filled the earth with verdure and floral beauty; and if the pluvial god would but stay his hand and allow the much-desired solar brightness to shed its benign influence on the landscape, how glad would be the hearts of all bee-keepers, for, under such preceding influences, the earth would burst with blossoms and make our happy land to flow indeed with milk and honey. Already the grass crops in our neighbourhood are fit for the scythe, bending with their own weight and dark with their richness,—a richness, however, gloriously relieved by the golden buttercup and the silvery clover. How different is all this from the May-time of last year, when the chilling east winds blighted everything, (?) and the face of the country was comparatively bare, and the prospect a barren one. Last year the white clover was a failure entirely, the grass having been cut before its blossom appeared, and in consequence of the cold, wet weather a second crop did not appear; now, however, we have white clover in before the chestnut blossom has departed, and if favoured with a fine June there is every prospect of a good bee season.

WORK FOR THE MONTH.

Artificial swarming may be proceeded with, and we strongly recommend it in preference to the natural swarming system, which often entails many days of weary watching, ending at last in disappointment.* Overhaul all stocks that have swarmed during the past bad weather, and be assured of their possessing a fertile queen before supering, or setting them aside for any other profitable purpose. Casting seldom ensues upon artificial swarming, but in all cases it may be prevented by cutting out all the queen-cells but one, which *one* should be left in the midst of the brood combs to prevent its being injured by cold.

It will pay well to supply all newly-swarmed stocks with fertile queens, the more particularly where they have been swarmed artificially; failing which, the latter should always be supplied with ripe queen-cells.

Super all stocks that are not intended to swarm, and to prevent the latter catastrophe as far as is possible give more breeding space in the stock hive. Remember, swarming cannot be absolutely controlled, but its probability may be lessened.

It will pay, and pay well, to feed all swarms during the first seven nights of their existence;

* Our leaflet on the subject, post free for 1*d.*, will give full directions for the operation.

and it is positively incumbent to feed them on all bad, *i.e.*, wet and cold days, when they cannot get food abroad.

In these days of advanced bee-keeping it ought not to be necessary to prate of guides, but some may be wiser for being reminded that wax-guides are essential for securing straight combs both in stock hives and supers.

Wax-comb foundation given to swarms will aid them considerably, and careful feeding will cause them to fill their hives with comb and brood, so that in from fourteen to twenty-one days after having been hived they will be fit for supering.

Bees should not be allowed to hang outside their hives in idleness; give increased space either in the form of a super, a nadir, or an eke; and if the weather is unkind, feed them to induce comb-building, which, when once begun, will probably be continued when fine weather sets in.

Queen-wasps should be carefully destroyed. Spiders should be destroyed, they greatly annoy the bees when their web is near the hive entrance. Earwigs should be rubbed off with a rough towel or glove. Ants may be kept down by greasing the legs or stand of the hive, they consume honey largely.

Over-full Skeps.—Skeps are sometimes too full of honey and stores to permit of breeding in such a degree as will procure a profitable surplus population, and should be eked or nadired with a view to give increased space for the elongation of combs; and if at the same time some of the honey can be set running by slicing the combs with a knife, more available space will be created, as the bees will empty the cells, and probably use the honey in comb-building. Bar-frame hives, in a similar condition should be relieved of surplus honey by the aid of the extractor.

QUEEN FERTILIZATION.

A strange story comes to us from Kenilworth on the above subject, which is completely at variance with all that has been written and imagined on the subject. On Sunday, the 5th of May, the owner of Priory Cottage, Kenilworth, was in his garden at mid-noon, and saw a queen and her favoured suitor together on a currant bush; they flew together to a second bush a few yards distant, the drone carrying the passive queen. In a short time they passed in a similar manner to a third bush, when the observer caught them in a tumbler, and watched them for a minute or two, when they separated, and the queen flew direct to one of his hives, while the drone remained in the tumbler for several minutes plainly visible, and he then took wing. What is thus faintly outlined was fully set forth in a letter, accompanied by another from a gentleman who is fully impressed with the truthfulness of the 'Observer,' whom he describes as an intelligent man, not an advanced bee-keeper, but willing to answer any questions on the subject.

ASSOCIATION REPORTS.

The Lincolnshire Bee-keepers' Association have for two years adopted an excellent method of publishing and distributing their annual reports, spreading a knowledge of bee-keeping, and interesting their members and friends in the good cause, at the minimum of cost and labour, and, we may add, materially aiding the circulation of our *Journal* into the bargain; and we think it will commend itself to the goodwill of all secretaries.

Instead of incurring the labour and cost of a specially-printed report, the Hon. Secretary furnished us with the Lincolnshire Report and the names of those to whom he wished it to be sent; and when published in the *British Bee Journal*, a copy was sent to each member under a cover which informed the recipient that it was 'presented by the Lincolnshire Bee-keepers' Association.' The whole were sent from our office, and the total cost was less than it could otherwise have been sent out for. Thus the Hon. Sec. was saved a considerable amount of labour, and the members in addition to their report received a budget of most useful practical information. In thus sending out reports Hon. Secs. have the double advantage of using our columns for imparting any useful information which may be of special local value, while our share of the work is confined to the printing of an extra number of *Journals*, and folding and posting them.

WHY DO QUEENS PIPE?

Amongst the extraordinary (?) facts in bee-culture is what is called queen-piping. No one who has any knowledge of the subject will presume to gainsay the assertion that under certain conditions which by the way are very uncertain, queens will emit an oft-repeated sound, which we venture to suggest, instead of being a piping challenge to mortal combat, as it is generally believed to be, may be more faithfully likened to the half-hearted croak of an expiring frog. The question, however, as mooted above, is, why do queens pipe? And, without wishing to hurt the feelings of those who choose to invest the sounds emitted with more poetical significance, we venture to offer an opinion that it is *because they are impatient, or hungry*. This is very commonplace, it may

be observed, and a terrible falling from the clouds of poetry, but we believe it to be the fact.

Persistence in error because it is ancient is a propensity not confined to apiarists, though their hobby, savouring of the supernatural, tends, perhaps, with them, to its fuller development. Nevertheless, we cannot see that an idea because it is *ancient* should be held sacredly true and unchallengeable.

The idea has hitherto been held that the 'teet, teet, teet,' of young queens confined to their cells is a note of challenge; and the belief exists that they are eager to burst from their guards and engage in deadly encounter; and we, in common with others, were so impressed, until by the revealing power of the bar-frame principle the mysteries of the hive were laid bare; and then we found that instead of the vaunted eagerness for combat, the young queens appeared more disposed to evade each other and rush forth with swarms. That hatched queens will destroy royal cells and stab their occupants, and that queens, mature ones especially, when brought together, will fight to the death, we readily admit, having witnessed both facts: but that is not the point at issue. We have found numbers of young queens at liberty in hives, which must have taken some hours to hatch; and if so 'eager for the fray,' as is supposed, their challenge would have brought them instantly together, but instead, although we have seen three on a single comb, the tendency has been to take wing, or otherwise, to avoid each other; and on swarming, when several young queens issue at one time, the fighting propensity does not exhibit itself in the slightest degree, but each endeavours to head a separate following and fulfil her destiny in a more peaceful way.

On the other hand, we have often heard encaged queens 'pipe' when there has been no other queen in the hive to challenge. They will pipe when held alone in the hand, or put (as we have often put them to show their harmlessness) into the mouth; and often, when taken by the wings, they will emit a grunt, apparently of displeasure. And taking all the facts into consideration, we avow an entire disbelief in piping being a challenge to combat.

CONTROLLING THE FERTILIZATION OF QUEENS.

Under the heading 'Artificial Fertilization' in the *A. B. C. of Bee Culture*, a cyclopædia of everything pertaining to the care of the Honey-bee—bees, honey, hives, implements, honey-plants, &c., &c.,—compiled from facts gleaned from the experience of thousands of bee-keepers all over our land, and afterwards verified by practical work in our own apiary, by A. I. Root, 1878, the author says:—

'Much time and money has been expended in wire-cloth houses and glass fixtures to accomplish this result, the more perhaps because a few sanguine individuals imagined they had succeeded in having the queens meet the drones in confinement, thus securing the advantage of choice drones as well as queens to rear stock from. As several years have passed, and no one has succeeded in verifying* their experiments, we shall have to conclude it was all a mistake. A friend was quite sure he succeeded, but after examining the matter it was found the queens got out and took their flight in the usual way through the passage that was left for the worker bees, he having based his calculations on the oft-repeated statement that a queen could not pass through a passage $\frac{5}{32}$nds of an inch in width. The queen, just before her flight, is very slender, and will get through a passage that an ordinary laying queen would not, and those who claimed to have succeeded, being rather careless observers, might have supposed that the fertilization had in reality taken place in the hive. Again, one of them who claimed to have succeeded states that a queen will always take exercise in the open air after she has been fertilized in confinement. This seems to render the whole matter ridiculous, especially if she takes this flight before she commences to lay. About the year 1870, hundreds of bee-keepers were busily at work, trying the project with a view of keeping the Italian blood in a state of absolute purity in neighbourhoods where black and common bees were kept in considerable numbers, and the subject affords a fair illustration of the mischief which may be done by unscrupulous persons, reporting through the press what has been guessed at rather than demonstrated by careful experiment.

'Taking into view the in-and-in breeding that would have resulted had the experiments really been a success it is doubtful if it would have been a benefit after all.† When it was found that the Italians speedily became hybrids when so many black bees were all about us, as a matter of necessity frequent importations from Italy began to be made; and when it was discovered that stock fresh from their native home at once showed themselves superior honey-gatherers, the business assumed considerable proportions, and now almost every apiarist of fifty hives has an imported queen of his own to rear queens from.‡ This has the effect of not only giving us the best

* The title-page of the work tells us that the *facts* were gleaned from the experience of thousands of bee-keepers, *and verified* in Mr. Root's own apiary.—Ed. *B. B. J.*

† When the fox could not get the rich-looking grapes because they were out of his reach he declared they were sour, and not worth the trouble of gathering!—Ed. *B. B. J.*

‡ The last two sentences are of the weakest we have ever seen from the respected author's pen. He acknowledges that Italian stocks fresh from their native home showed themselves superior honey-gatherers, and admits that, surrounded by black bees, they speedily become hybridized; also that the importation of Italian queens is a business that has 'assumed considerable proportions; and further that every bee-keeper (nearly) of fifty stocks has an imported queen of his own to rear queens from; yet he deprecates the experiments that have been made to render fertilization controllable, and so render the importation (except occasionally) of new stock unnecessary. In the former sentence he deplores the evils that in-and-in breeding would cause; but we beg leave to say that that is no part of the question; for if fertilization could be *controlled*, in-and-in breeding could be absolutely prevented. Oh, Mr. Root! had you but discovered the means to the desired end how differently would you have argued!—Ed. *B. B. J.*

stock known,but of giving frequent fresh strains of blood, and is, perhaps, very much better all around, than it would have been had artificial fertilization been a success.'

BEES FERTILIZING FRUIT BLOSSOMS.

The value of bees as fertilizers of fruit-blossoms has never been exemplified more forcibly than in this year with regard to gooseberries. It will be remembered that while the gooseberries were in blossom, the weather was so cold, wet, and uncertain, that no insects save bees could venture forth, and they could only do so at very short intervals; and as a consequence, only those who have bees in their gardens can boast of even a moderate crop of those toothsome tart-ers. We do not found our opinion on the result of a single season, but, having watched the thing for years, and urged upon market gardeners and others the necessity for keeping bees as fertilizers in uncertain weather, we are able to bear witness to the facts. Many times at Hanwell we had excellent crops of gooseberries and currants, while market gardeners (without bees) had what they called 'none.'

This year we have a good crop, considering our trees were only planted early in 1877, while our neighbours, market gardeners included, have 'none.' We find that in such 'catchy' weather as we are alluding to, a comparatively low wall makes a difference in the crop, all else (except the presence of bees) being fairly equal. It would thus appear that though a few moments' sunshine may tempt bees to visit the early blossoms near them, the faint odour of those in a separated, though adjacent garden is not perceived, and, consequently, the trees are not visited. What have others to say on this subject?

QUEEN AND DRONE EXCLUDERS.

ABBOTTS SPECIALITY.

The means of excluding queens and drones from super, or any other description of honey receptacle, has been a vexed question for a long time; but we think (and hope) that we have succeeded, in a general way, in arriving thereat. We have discussed the question of circular *v.* elongated holes, and have given a verdict; and now, after long trouble, we offer perforated zinc with long holes, of a calibre which admits workers, but excludes drones and queens. Our test has been the caging of sundry queens within the zinc; and although the workers have solicitously gained access to the queens, in no case has a queen got out of her cage; and although it may be possible for some little undersized 'minx' to pass the ordeal, yet we have every reason to believe as a fact, that our speciality zinc will fulfil the requirements demanded. We offer it at 1s. per foot.

GETTING BEES OUT OF STRAW SKEPS.

Many bee-keepers inquire of us for the best and cheapest method of reorganizing their apiaries by getting their bees into bar-frame hives, that they may be the more readily under control, yet at the same time they do not wish to increase the number of their stocks, or lose the chance of a fair honey yield, and in reply we suggest that every two stocks should be thus treated. When one of them has swarmed its swarm should be hived in a cheap bar-frame hive, which should be placed near to the second hive, and in the evening of the same day the second hive should be swarmed artificially, and its swarm (well sprinkled with thin syrup) should be united to the natural swarm in the usual way, and the hive containing both should be placed on the stand of No. 2, while No. 2 itself should be carried to the stand of No. 1; and after sprinkling both, one should be set upon the other, the feed-hole of the lower one being opened, and both should be luted together to compel the bees of both to work through the bottom entrance.

There will then be a double swarm in the bar-frame hive that in a week or ten days, if carefully fed, may be supered with every prospect of a good harvest, and at the end of a further period of ten days the doubled skep may be transferred to a second bar-frame hive, a considerable quantity of honey of drone-comb taken away, and a thoroughly strong stock thus formed, which, consisting almost wholly of young worker bees, may be supered at once, and will give a good account of itself before the end of the year, provided of course that the weather be fairly good.

It is highly probable that the doubled stock may throw off a cast a few days after the first swarming, in which case it will be well to find the young queen and despatch her, and thus cause the bees to return to their home. This method of doubling swarms and then doubling the stocks is a very good one, pays well, and does not necessitate a large outlay for hives, and we strongly recommend it.

USES OF OLD COMB.

Many bee-keepers having old combs, in view of the apparently smaller size of the cells, consider it useless and melt it up, or otherwise destroy it. Pray let us advise that in future, if it be healthy, its cells should be shaved off about half down, leaving little more, if any, than the midrib, and that it be used in hives. The bees will then gnaw it away, clear away the exuviæ from the base of the cells, and renovate the whole, making it 'equal to new.'

QUEEN-RAISING.—NUCLEUS HIVES.

A great deal of unwisdom has been written on this subject, and a vast amount of labour and valuable time thrown away in the endeavour to raise queens in nuclei after the manner usually recommended. Small nucleus hives, with divisible frames, have had their day here, as they had in America, many years ago; but in the latter country they have given place to those of ordinary shape, but narrowed by partitions that leave room for two or three frames only, and such are those generally there recommended.

Our object, however, is not to raise a discussion as to the size of hive to be used, but to endeavour to show the best method of breeding queens in them, and of keeping spare queens until they are required; and we shall only impinge on the question of size by observing that, from our experience, young newly fertilized queens will not long be content with a little box holding a square foot of comb only, half of which is filled with honey; and, therefore, when they are to be *kept*, it is important that the nucleus hive should be capable of expansion.

One of the great, if not the greatest of faults in the system of queen-raising in nuclei, is that which counsels the placing of brood in the nucleus hives, and causing the few bees therein to raise queen-cells therefrom. It appears to us, as reasonable, that if ten nuclei are to be started, it would be equally wise to deprive a good stock of its queen, and let the bees *en masse* raise queen-cells to their hearts' content, as to divide them into ten miserably small families, and force each to raise a queen-cell for itself. We have often been greatly amused at the glib way of those who give directions for the formation of nuclei, or the making up of hives for swarms; they write as if the requisite bees, brood combs, and empty combs, are always ready at hand, and as if the abstraction of any or all of them from full stocks did no possible harm to the latter; but most of those who have had experience, know of no greater difficulty than is found in procuring empty comb; and few wise bee-keepers will care to be continually robbing their full stocks of brood and young bees to patch up nuclei.

The principle we advocate is that of raising queen-cells in full stocks, and giving them to nuclei to hatch out and keep home for, until they are fertilized and laying. Whatever method is adopted, it will be absolutely necessary to achieve the stocking of a number of boxes containing comb and brood, and how that is to be brought about is the first difficulty, and all others are simply supplemental. We began by the mention of ten nuclei, and if that number were set afoot, it would be easy from a fairly full stock to begin, continue, and end, by its use alone; and if fertilization could be controlled—and we have every confidence that its control will presently be possible—the raising of a hundred or more queens from such stock can be easily accomplished.

GRAND SHOW OF THE BRITISH BEE-KEEPERS' ASSOCIATION AT SOUTH KENSINGTON.

We have been delighted by the receipt of a communication from the Rev. Hon. Sec. of the above Association, under whose careful management the whole thing has been renovated, brought again to light, and put into a position that is bound to inspire the utmost confidence in the minds of those who ought to, and we feel assured will, give it the support which so well-meaning an Association really deserves. We publish the communication in full, as follows:—

Abbot's Hill,
Hemel Hempstead,
May 27, 1878.

DEAR SIR,—I beg to inform you that the Committee of the British Bee-keepers' Association have made arrangements with the Royal Horticultural Society to hold the Annual Metropolitan Bee Show in their grounds at South Kensington, on Tuesday, August 6th, and the two following days. May I take this opportunity of informing your readers that a Special Prize Fund has been started (as will be seen by a reference to our transactions), and beg of them to send their own contributions, and any which they can obtain from their friends, to the Treasurer or myself as early as possible. The Prize Schedules will be obtainable by applying to myself after the next meeting of the Committee, on Monday, June 10th.

I remain, Sir,
Yours faithfully,
HERBERT R. PEEL,
Honorary Secretary.

Having held a bee show in the Royal Horticultural Society's Gardens at South Kensington last year, we are enabled to state that we know of no place where there are greater facilities for carrying out the proposed exhibition, whether in respect of honey, hives, or manipulation with living bees; and feeling that in the hands of the Rev. Hon. Sec. the future of the Association is safe, we give the exhibition our strongest support.

It is pretty well understood that the backbone of an Association is its annual exhibition, and it may fairly be said that the marrow which gives sensation to the whole is its Prize Fund, and we hope the appeal on its behalf will be quickly and heartily responded to. British bee-keepers must not forget that their Association is now presided over by a noble patroness of humanity, the Baroness Burdett Coutts; and we trust that the first show held under her

presidency, graced as it will be by her distinguished presence, will be made worthy of the occasion, and, sinking all differences, we earnestly hope that they will make South Kensington their rallying point, and swarm there like bees to their queen.

PARIS EXHIBITION.

All being well, it is our intention to visit the Paris Exhibition during the second week in June, for the purpose of gleaning any and every information possible in regard to bees and their culture through the exhibits and exhibitors at that great world's fair. We do not mention the fact in a spirit of egotism, but in the hope that it may afford a reason beforehand for seeming neglect of correspondence during that period. We hope our visit will enable us to give a good report in the July *Journal*, for if there is anything good as regards bees in the exhibition, it will certainly be described.

COMING SHOWS, 1878.

July 10. Ealing, J. Hunter, Hon. Sec.

Aug. 6, 7, 8. British Bee-keepers' Association, Royal Horticultural Society's Gardens, South Kensington; Hon. Sec., Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead.

Aug. 21. Westbury-on-Trym, J. B. C. Burroughs, Hon. Sec., Westbury-on-Trym.

Aug. 22. Dorsetshire, at Colyton Park, C. E. Norton, Hon. Sec., Shaftesbury.

August (date not fixed), Dorset County Bee-keepers' Association Show at Dorchester. Hon. Sec., Mr. Charles E. Norton, Shaftesbury.

Aug. 30, 31. Arbroath, William Raitt, Hon. Sec., Liff by Dundee.

Sept. 5, 6, 7. East of Scotland, William Raitt, Hon. Sec., Liff by Dundee.

Banchory, Inchmarlo, about the middle of the month.

Sept. 24. Moreton-in-Marsh, Rev. J. W. Clarke, Hon. Sec., Moreton-in-Marsh.

Secretaries of coming Shows will greatly oblige by forwarding lists of fixtures. They will be inserted in this column without charge.

BRITISH BEE-KEEPERS' ASSOCIATION.

A Committee Meeting was held at 15 Beaufort Buildings, Strand, on May 13th, Mr. Jackson, in the chair. Present, Messrs. Freeman, Hooker, Glennie, Henderson, Hunter, Stewart, and the Rev. H. R. Peel, Hon. Sec.

The principal business of the meeting was to make the preliminary arrangements for the holding of the annual show; to decide upon the purchase of a screen for manipulations at local shows; and for the employment of a man to work on behalf of the Association, for the purpose of giving practical illustrations of bee management. It was decided that the secretary and treasurer should visit the authorities at the Crystal Palace, and endeavour to make arrangements for holding the show at that place.

The Committee decided that the secretary should insert an advertisement in the *Bee Journal* for the purpose of engaging a man to work for the Association. It was decided to give a silver and bronze medal for competition at the Ealing and Sevenoaks Shows. The meeting was adjourned till Monday, May 27th, for the purpose of receiving the report of the secretary and treasurer from the authorities, at the Crystal Palace.

The adjourned Committee Meeting was held at 15 Beaufort Buildings, Strand, on Monday, May 27th. There were present Messrs. Cowan, Hunter, Minson, Hooker, Godfrey, Freeman, Stewart, and the Rev. H. R. Peel, Hon. Sec. Mr. Cowan was voted to the chair. It was unanimously decided to award a silver and bronze medal as first and second prizes to the forthcoming Ealing and Sevenoaks Shows. These prizes to be awarded as follows:—At Ealing—'For Driving Bees in the most effectual, neatest, and quickest manner.' And at Sevenoaks—'For the Best Exhibition of Honey not less than 20 lbs. in Sectional Supers, of not more than 3 lbs. each.' With the view of assisting Local Shows it was also decided to purchase an enclosed screen in which manipulations may be carried out with safety to the public.

As unexpected difficulties had arisen in carrying out the desires of the Committee of May 13 respecting making arrangements with the authorities at the Crystal Palace for holding the Annual Show at that place, it was decided that the Hon. Sec. and another member of the Committee should wait upon the Managers of the Royal Horticultural Society, and endeavour to arrange that the Annual Metropolitan Bee Show be held at South Kensington. It will be seen from the letter of the Hon. Sec. on p. 23, that the requisite arrangements have been made, that the Show will take place on August 6, 7, and 8, and that the Prize Schedules will be completed at the next meeting of the Committee, which will be held on June 10.

[Note.—We beg to call attention to the Prize Fund, a list of subscriptions to which was opened at the close of the meeting, and to express a hope that the hands of the Committee may be quickly strengthened by an early response to the appeal by the Rev. Hon. Sec. in its behalf.—Ed. *B. B. J.*]

Prize Fund.

The following amounts have been given or promised:—

	£.	s.	d.
Mr. Cowan	1	1	0
Mr. Hooker	1	1	0
Mr. F. R. Jackson	1	1	0
Rev. H. R. Peel	1	1	0
Mr. Hunter	1	1	0
Mr. Godfrey	1	1	0
Mr. Stewart	0	10	6
Mr. G. Minson	0	10	6
Mr. Freeman	0	10	6
C. N. Abbott	1	1	0
J. A. Abbott	0	10	6

Subscriptions may be sent to W. O'B. Glennie, Esq., Chief Accountant's Office, Bank of England, to Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead, or may be enclosed with subscription for *Journal* to our office, Fairlawn, Southall, near London.

DORSET BEE-KEEPERS' ASSOCIATION.

The annual meeting of the Dorsetshire Bee-keepers' Association was held at the Antelope Hotel on Monday, April 15th, when the following report was presented by the Hon. Sec., Mr. C. E. Norton, of Shaftesbury, and unanimously adopted:—

'In presenting their first report, the Committee have much pleasure in congratulating the members upon the success that has crowned their efforts. So liberally have

they been supported by many of the principal inhabitants of the county, that before the Association had been in existence a year they were able to hold two shows in connexion with the exhibitions of the principal local horticultural societies—the first at Dorchester, on August 23rd, and the second at Sherborne, on August 29th. Money prizes amounting to 41*l.* were offered, as well as several silver and bronze medals. The competition was good in most of the classes, and excellent in several: the attendance was larger than had been anticipated, and the interest and spirit of inquiry aroused cannot fail to produce the most beneficial results. The last honey season was an exceedingly poor one, and the consequence was that only those who managed their bees with care and intelligence were able to exhibit large and valuable cases of surplus honey; hence there were fewer exhibitors than would otherwise have been the case, although some of the local supers were of unusual weight and excellence. In the open competitions members of our Society won several of the medals offered by the British Bee-keepers' Association, and the supers exhibited by Mr. W. H. Dunman, jun., of Troytown, and Mr. T. Stickland, Puddletown, would undoubtedly have attracted attention at the leading honey shows in the kingdom, being of extraordinary weight, the combs clean, straight, and free from brood, and the honey of excellent quality. It is gratifying to note that great improvements have already taken place in the hives made in the county. Through the efforts of our President, the Rev. G. W. C. Skene, of Fontmel Magna, and other gentlemen, the small and badly-made skeps so long used by cottagers have in many parts of our district been superseded by hives of larger size and the best workmanship, from which the surplus honey can be taken without destroying the bees. Some intelligent labourers have been induced to make the improved skeps during their leisure hours in winter, and the fame of the Dorsetshire hives has spread to adjoining counties, and a good demand for them has sprung up. Straw skeps equal to those sold by the leading makers were offered at our shows by local men at about half the usual price. Several of our members have given bar-frame hives a fair trial, and are delighted with the results; but the Committee do not venture to hope that the spread of bee-keeping on the humane principle will be rapid in the rural districts. They believe, however, that the number of those who resort to the cruel and wasteful plan of destroying their stocks in order to rob them of their stores will be gradually lessened when it becomes more generally known that the bees can be saved, and honey of a much better quality—free from all the impurities of pollen, brood, &c.—can be had without additional trouble or expense when once a fair start is obtained, while the wonders of the hive can also be regularly and carefully noted. The objects of our Association may be briefly summarised as follows:—1st. To introduce a more rational and humane mode of bee-culture amongst all classes of the community who are in a position to keep bees. 2nd. To show them how to obtain the largest quantity of honey, and that, too, of the finest quality, with the least expenditure of money, time, and labour. 3rd. To induce the cottagers of the district who have not already embarked in bee-keeping to place stocks in their gardens, so that the myriad flowers which now 'waste their sweetness' may be rifled for the benefit of man. It will be seen by the financial statement that, although the preliminary expenses were heavy, we shall be able to commence our second year with a balance of 12*l.* in hand. It is hoped, moreover, that a considerable addition will be made to the ninety subscribers whose names now appear on the list. As soon as funds will permit, pamphlets, leaflets, and other cheap works on bee-keeping, will be circulated amongst the labourers of the county, and prizes for honey will be offered at various flower shows. Arrangements will also be made for practical manipulations during the summer, and for a series of village lectures during the winter. The Committee feel that their work has only just begun, but they rely upon the well-known liberality of the inhabitants of the county for the means wherewith to carry it on. They believe that the result of a more general introduction of bee-culture will be the same in Dorset as it has been elsewhere—namely, a larger supply of honey, which is now looked upon as a luxury, and a consequent reduction in price. The public will thus be benefited, while a source of additional income will be opened up for intelligent cottagers.'

The accounts for the past year were also passed, the officers re-elected, and a few names added to the local committee, Mr. Newman, Dorchester; Mr. W. H. Dunman, jun., of Troytown; and Mr. T. Stickland, of Puddletown, being amongst the number. A deputation was sent to Mr. Pope, hon. sec. of the Dorset Horticultural Society, and arrangements were made for holding another Bee and Honey Show in connexion with the next flower show at Dorchester. Some of the rules were slightly modified, and it was decided to offer prizes to cottagers, for the best exhibition of honey, at several horticultural meetings in the county during the coming summer.

WOLVERHAMPTON AND STAFFORDSHIRE BEE ASSOCIATION.

The treasurer, the Rev. W. J. Frere, St. Mary's Vicarage, Wolverhampton, would be much obliged if members would pay their subscriptions (2*s.* 6*d.*) for this year, and arrears, if any, for last, as soon as possible. The Association now numbers about fifty members.

NEW YORK BEE-KEEPERS' ASSOCIATION.

The semi-annual meeting of the New York Bee-keepers' Association was held April 27th, in room 24 of Cooper Union, New York. J. S. Coe, president, presiding.

In the absence of the secretary, W. S. Slocum, Ehrick Parmly was elected secretary *pro tem.*

A letter from Mr. Slocum was read, stating his removal from Brooklyn to Red Bank, N. J. Present duties and occupation making it impossible for him to act as secretary, he tenders his resignation. Accepted with expressions of regret, and Ehrick Parmly elected to the office.

Letter from Theo. F. Read, treasurer, read, tendering his resignation as treasurer, owing to its being impossible for him to be present regularly at the meetings of the Association and to attend to the duties of the position. Treasurer's report read and accepted; but resignation not accepted. He is, therefore, continued in office with strongest expressions of his value to the Association as treasurer, and as an active working member, and keen observer.

Minutes of last meeting read and adopted.

Requested that the roll of members be copied in the record book.

J. L. F. Smith spoke on Article III. of the constitution relating to fees; and it was resolved that, as the treasury is in good condition and the expenses of the Association small and likely to be fully met by the initiation fees of new members, no further provision be made at present for fees from other sources. Funds in the treasury, $29.14.

The attendance was not large, but all took part in the proceedings, and a number of letters were received expressing regret at inability to be present. The reports on wintering showed unusual success. In part owing to the favourable weather, but more to an increase of knowledge on the subject through our journals. J. F. Callbreath, White Lake, Sullivan county, N.Y., writes that he wintered 300 stocks without any loss, and regrets exceedingly his

inability to attend the meeting. Others state marked success on a smaller scale. Some in wintering on summer stands and others in cellars.

The following statement from T. F. Read, Brooklyn, April 26th, 1878, was read.

'J. S. Coe, Esq.—Dear Sir,—On the 20th of this month while handling my bees, I met with a strange incident. I had a weak stock which I wished to strengthen, and to that end removed two full frames of capped brood from a strong hive and placed them in the weak one. While I was thus engaged, the dinner-bell rang, and in my haste I neglected to shake all the bees from one of the combs before placing it in the hive and closed the hive and went to dinner. When I came out again I noticed bees fighting on the alighting board. I immediately suspected the cause of the trouble, and upon lifting out some of the frames saw the bees clustered upon the bottom board. I dispersed them with a little smoke, and looked for the queen, but could not find her. Happening to step in front of the hive I noticed a knot of bees on the alighting board of an empty hive near by, and upon examination found it contained the queen. I separated her, and she escaped from me into the hive. I opened the hive as soon as possible, and found her surrounded by bees, which were trying to bite and sting her. I picked up the bees and queen, and after picking the bees off, I noticed that one of her wings was a little elevated; upon looking under it I saw a bee's sting sticking into her left side just behind the wing and a little below it. With considerable difficulty I managed to extract it, and the wounded side bled. I caged her until the 22nd, when I liberated her and she was accepted. I saw her to-day running around on the combs; she is a young queen which I raised this spring, and I think she was fertilised before this took place.

'I have seen bees stung and die almost immediately, and supposed that this queen would, but she does not seem at all disposed to do so.

'I thought this might be of interest to you. I have never heard of a similar case. I am very sorry that I cannot be present at the meeting to-morrow, but hope it will be lively and interesting. Yours very truly, Theo. F. Read.'

S. Cary, Roselle, N. J., remarks on purchasing bees and his success:—

'Lost half in wintering.' Careful fall examination recommended and other requisites to success.

The question of stimulating by feeding was discussed. Mr. Cook had not succeeded. Mr. Coe reported marked success, thereby securing surplus from earlier sources than he otherwise would have secured. Feed just enough to stimulate breeding. A trifle more in bad weather, and regularly as to time, but not so much that they will store any. All should be consumed in rearing brood.

J. Van Winkle, Jr., feeds by hanging a frame of honey outside the division board and the bees can take it as they require it. His experience is only of one year. Began with five stocks, increased to seventeen. All now in good condition but one, which had a drone-laying queen. Advised to remove the drone-laying queen and to strengthen by one or more frames of sealed brood, according to their strength to take care of it, and he would soon have a strong stock and a young queen presiding over it.

Mr. Cook has had but one year's experience, and has not fed much for the purpose of stimulating breeding.

Mr. Van Winkle—'Feeding can be done to best advantage by giving close attention to the weather, sources of supply,' &c.

Mr. Coe—'The end desired is to bring bees in best condition for the white clover harvest,' and described his feeder which he places on top of the frames; uses a quilt in place of a honey-board. Begins feeding in February, a spoonful twice a-day regularly; in bad weather a little more. Recommends all to have feeders, and to use them judiciously. Feeds white sugar syrup about the thickness of honey; brings to a boiling point; sometimes puts in a little soda. Puts on boxes the beginning of white clover harvest. Some succeed in getting honey stored from fruit-blossoms by early feeding. Mr. Read is now experimenting to secure fruit-blossom honey from the body of the hive and will soon report. Bees will not breed much when not gathering stores. One season, after white clover, fed three spoonfuls a-day to each hive and increased breeding very much and never had such good fall success.

'One neglected comb, so full of bee-bread that moths had not attacked it, I put in a strong colony and in eight days they had cut it down nearly to the base of the cells, built it out, and stored in it eight pounds of honey.

'The planting of trees on the roadside and elsewhere for ornament, preference being given to those yielding honey, was advocated. Much can be done in this direction by the formation of village improvement societies. Bass-wood, tulip, and sycamore, maple, particularly recommended.

Mr. Knapp's experience extended over seventeen years, has kept from one to a dozen hives, and has hitherto pursued the old box system and killing, but now has made fifteen hives, which he thinks combine all the good features of the various hives exhibited at the American Institute, and entered upon a detailed description; which, in the absence of a hive or model, was not very clear. It was therefore proposed by Mr. Crouch that hereafter all who desired to explain the hive they used, or anything employed in the apiary, bring a model; and Mr. Van Winkle further suggested that at our next meeting each member bring a model of the hive he uses, which met the hearty approval of all present.

This closed the meeting and the members then held an informal talk on subjects relating to the apiary.

Ehrick Parmly, Secretary *pro tem.*

[The above has been obligingly forwarded to us by Dr. E. Parmly, and appears simultaneously in the *American* and *British Bee Journals*. We beg to express our best thanks for the courtesy, and our pleasure at seeing our system of stimulative feeding adopted.—Ed. *B. B. J.*]

CHATS ON BEES.—No. II.

By W. Raitt.

May, 1878.

Apiarian. This is splendid weather for your bees, John. I hope you have supers fairly under way.

John. That I have, sir. Early in the month I noticed a powerful stream of bees in the direction of several well-stocked gardens, and on examining my stocks, I found they were being rapidly glutted with gooseberry honey. The blaeberries were also in bloom, and I never saw so many bees gathering as I did there in the wood, so I relieved a few combs by means of the extractor, and, at the same time, spread the brood-combs, placing an empty comb, or a sheet of foundation, in the centre of each strong stock. I hope I did right.

Ap. Quite right, John; only you must be careful to act thus only where the stocks are strong. I have found that in giving foundation it is good to draw the neighbouring frames quite close to it for a day or two, and afterwards move them back to the regulation distance: this creates less vacant space and the work goes on faster. This 'spreading the brood' is a capital idea if judiciously carried out.

John. I have been thinking of going a step further. It is such a trouble to lift these piles of supers every time I want to examine the frames to see whether they are being glutted with honey, or whether

preparations are being made for swarming, that I propose, as soon as the clover begins to yield, to re-arrange my frames, so that those containing most eggs shall be on the outside. As these will not hatch out for three weeks, and as the queen is pretty sure to keep up laying in the centre, I expect that very little honey will be stowed below during that time.

Ap. Capital! And if three days or so, before performing this operation, you give her some empty combs in the centre to lay in, you will get combs with nothing but eggs in for this purpose. But what are you to make of your surplus combs obtained by this process?

John. I'll need them all, sir; for, in the first place, many of my frames are almost filled with drone-comb, and others with patchy transfers. I intend to extract and melt up all such, and by the liberal use of foundation I hope to wear into combs so straight as to fit anywhere. Then, in the second place, I want a few spare combs for starting a few swarms.

Ap. Your ideas are good, John, but how about the brood in those combs you are to destroy? You know it is against our principles to destroy bees or brood.

John. I have thought of that, too. The drones I am afraid I must sacrifice, but I intend to place those containing any worker brood in the top story of No. 2 there, which I am working for the extractor. There they will get hatched, and afterwards I can extract and lay them aside.

Ap. What style of super are you using, John?

John. Oh! a mongrel lot. There you see some big boxes being filled for the last time; they are difficult to sell, but as I had some of them nearly filled with splendid combs last year, I thought a pity to break them up. These combs give them a fine start, and they are nearly filled by this time with fruit-blossom honey. If they won't sell as they are, it will pay me well enough to extract the honey and boil out the wax. Then, there is a pile of smaller boxes to hold three or four combs each. But I am more in love with the little sections.

Ap. Do you use tin separators?

John. Only in those I wish afterwards to glass for show. Those without them are, I believe, more quickly finished, hold more honey, and can be packed in a glassed box in the same order as they were worked, without requiring to be glassed.

Ap. I see you are up to the times, John. But do you not find that the queen is apt to spoil your supers?

John. Yes, with the large boxes. Never, with the sections and tin separators.

Ap. How do you account for that?

John. There are two reasons for it. The bottom rails of the sections come so close together that a space of only a quarter of an inch is left between for a passage, and the queen seems to be averse to going through such a small opening. Then, the sheet of tin on each side of the comb is so unnatural like for brood-rearing, that should she ever go up she never has the heart to lay an egg. I have some fears, however, about the sections without separators and the small boxes; but, as I make sure she is never pinched for room below, I hope she will remain there.

Ap. Then you don't use the perforated zinc?

John. I vote it a nuisance, sir. With sections and tin separators, zinc is quite unnecessary; and in any case it is undoubtedly a great hindrance to the bees.

Ap. How do you put the sections on your hives?

John. I just pack them together over the frames, resting them on quarter-inch laths, cover the outer sides with glass, and tie all together firmly with a piece of list.

Ap. You will find that in a good season that plan will cause trouble. Before this tier is finished, your bees will be requiring more room; to save lifting you might place a second tier above the first, but as the middle sections below will be first finished you will have to take the whole pile down to get them out. And you must get them out whenever finished if you wish to preserve their purity of colour. You should pack the sections in a shallow case with only laths for a bottom and thus be able to lift the whole at once so as to get a second set placed below; or, better still, make bar-frames the same width as your sections, but large enough to hold from four to eight sections packed inside each. Hang these in an upper story, and you have them in the best form for handling. The separators can be fixed to the frames, and thus never need to be removed.

John. I am obliged to you, sir, for the idea; and as I never rest content with half-measures, I shall at once go in for the top-story idea, with the sections hung in frames. Oh! here comes Peter.

Peter. Good evening, friends. Meddling again? eh!

John. Not exactly, Peter; I have been *learning* how to work sections.

Peter. You mean those puny little boxes: I have no notion of them. How would they look on my skeps?

Ap. Try them, Peter. Fit an adapting board on the top of a skep, and set the sections on it, and I warrant you will have some as nice as John's, though he will certainly beat you for quantity.

Peter. That is too much trouble. I find that my straw supers are very easy to work and sell well, so I think I shall stick to them.

John. What weight do you usually get by your method?

Peter. In '76 I had three supers off one skep; they held six pounds each and sold for eighteen shillings.

John. Not bad at all; but I'll tell you a secret. That same season I had nearly one hundred pounds from one hive, in nice glassed boxes that sold at one-and-six a pound. Your system is a poor one, Peter. Why, look here, I have supers being filled on nearly all my stocks, while yours are still struggling to get strong enough. And if you let them swarm at will during the great yield of honey I question if you will get a super this year.

Peter. I can't help the swarming; it is the nature of bees to swarm, and I get more by selling swarms than honey.

John. Well, perhaps, it is the best thing for the like of you to do. Raise swarms and sell them; the skeps *do* hold their own there.

(To be continued.)

Correspondence.

**** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

FRAUDULENT EXHIBITORS.

Now that the British Bee Association is re-forming, will you use your influence with that body before show season comes on, to suggest some means for defeating fraudulent exhibitors? At one of the 1877 shows, which shall be nameless, an exhibitor, who shall also be nameless, produced a goodly array of supers, not all of which (there is reason to believe) were the produce of his own bees. There was, too, a suspicious-looking super filled with partly crystallised honey. This was pointed out to the owner with the query as to whether it were not last year's. He protested that it was not, and remarked that he had noticed that honey in his district crystallised very quickly! Would it not be a good thing if judges were supplied with lists of districts, well authenticated, the honey of which is thus affected?

I would suggest to secretaries to issue a form vouching that the honey shown is the produce of exhibitor's own bees, gathered in the present year, and in a natural way—or whatever the advertised conditions may be—said voucher to be signed by the exhibitor, and attested by a clergyman, magistrate, or other responsible person, who could say that he knew the exhibitor, and had reason to believe that his statement was correct. No honest man could object to this, and it would deter, I should hope, some who do not mind a little sharp practice. Any offender detected after this in fraudulently taking a prize should be prosecuted for obtaining money under false pretences.—SIC VOS NON VOBIS.

THE PARIS EXHIBITION.

DISCOUNTING THE AWARDS.

I notice that Messrs. Neighbour and Sons have for some weeks had an advertisement in the English *Journal of Horticulture*, describing their celebrated beehives as of Philadelphia Exhibition, 1876, and Paris Exhibition 1867 and 1878, and announcing that they have been awarded 'Three Silver Prize Medals,' and 'that they are the only English exhibitors who attained silver medals for beehives.' Now, Sir, I have nothing to say about the humbug of prize-medal awards to exhibitors who, being the 'only exhibitors,' were not in competition with anyone else, but I must say it savours strongly of 'humbug' at least, for Messrs. Neighbour and Sons to lead the public to believe that they have been awarded a prize-medal at the Paris Exhibition of 1878, for to my certain knowledge the awards have not yet been made, and Messrs. Neighbour and Sons are not the 'only English exhibitors there.—B. U. G., *Paris, May 26*, 1878.

BEES AT INCHMARLO.

Enclosed is the *Journal* subscription for 1878—a year which most of the bee-keepers in this district have begun with high hopes, but sadly diminished stocks.

Owing to the excessive bad season last year many of the hives had very little to keep them during winter. Some of the young swarms, indeed, were dead before their owners thought of feeding them, and in consequence there is not half the number of stocks that we had at this time last year. That we have not lost heart, however, by the losses of last season will be seen from the fact that we are to have a District Bee and Honey Show, to be held in the Town Hall, Banchory, about the middle of September. A prize list, amounting to upwards of 10*l.*, has already been drawn up.

We are busy getting ready hives, sectional supers, fitting in comb foundations, &c. &c. As a proof of the great value of comb-foundations, I may state that I got two stocks of condemned bees in September last year. I fitted up a frame hive with eight frames filled with sheets of foundation, put in the bees, and commenced feeding; and next day, when I looked in to see if all was right, I was surprised and delighted to see that the queen had begun to lay. I continued to feed until I had given them 20 lbs. of syrup. I then closed them up for the winter. It is now one of the best stocks I have, at a cost, including the comb-foundations, of only nine shillings.

I trust we are to get a good season.—RICHARD MCGREGOR, *May* 24, 1878.

EXPERIENCES—FACTS FOR BEGINNERS.

Last year in this neighbourhood was considered a very bad one, and it was my first year that I commenced bee-keeping. I started with seven hives, six small straw skeps, and one bar-framer, and all black bees. I bought, on May 31st, a small Ligurian swarm; in the autumn I had twelve hives, and took off 192½ lbs. of super honey; and three of my first swarms threw virgins in August, which I threw back, one being from the small Ligurian swarm, which gave me 28 lbs. of super honey. My hives this year are more advanced. I expect three swarms before the end of the month, but this is a very late locality, all heather and furze, and keen winds. My largest skeps, although very strong, I fear won't swarm before the 10th or 12th of June. The bar-framer had in it a cast of 1876, which I bought from Bagshot; it had just enough honey to carry it through the winter, three frames had no comb whatever: it threw a swarm in July, which was put back, it gave me one super of 35 lbs.

I have never seen a honey extractor, and have never united stocks or swarms, but I use guide-comb, two to three inches deep, in all my hives, skeps included. The cottagers and gentry in this locality used to destroy their bees in the autumn for their honey, and used to say there was no other way of obtaining it; but Mr. Joyce and myself exhibited our supers at the village flower show last autumn. This year we are giving 3*l.* in prizes for

the largest and heaviest supers from this year's swarms, which I think will gradually put a stop to this cruel and suicidal policy. On June 21st last year I put a Ligurian queen into a skep of black bees which had thrown a swarm; when I returned on September 1st, after six weeks' absence, there was not one black bee remaining, all yellow jacks. My first supers were put on last year about the 12th or 15th of July; I shall put them on earlier this year, I was too late last. The hives threw virgins with the supers on. After giving me a super of 26 lbs. 14 oz., my heaviest swarm in a large straw skep weighed on September 3rd, 1877, 64½ lbs.; my heaviest stock hive, which did not swarm, deducting a super of 25 lbs., only 59 lbs. One swarm with its supers reached a total weight of 118 lbs. 11 oz.—a fact for beginners. The above swarm gave me over 87 lbs. of super honey last year.—*Farnborough, Hants.*

LIGURIANIZING — REMOVING STOCKS — OLD FOGYISM.

You will remember I had every reason to suppose my Ligurianizing in November last with the queen received from you was successful. I am now pleased to chronicle that she commenced breeding at a very early date; a few appearing on bright days in January; and that for some time past the hive (my solitary hive) has been so strong, that, but for the absence of drones, I should fancy they meant swarming. The young bees are larger than those that accompanied the queen; and it has been most interesting to watch their rapid increase, and to note their gradual undertaking of out-door duties. Now, though I have still very many black bees, few dying in the winter, the Italians seem the life and soul of the colony, bringing in harvest unceasingly, and by the numbers that are ever indulging in preliminary wing-stretchers, giving an air of activity and contentment to the scene that is most encouraging to the young bee-keeper.

My hive, as I before told you, is a 16-inch straw, slightly domed, with a 4-inch aperture at top. It is protected by a complete covering of felt, reaching *below* the floor-board, and surmounted with a wooden erection with wide, rather flat, roof, shading the whole, and an upper box for feeding and supering. The aperture at the top was filled in with perforated zinc, and protected by three or four thicknesses of bagging, thus the bees had good ventilation and protection without any bother of packing, &c. To this and stimulative feeding I attribute the present happy state of things.

Now, on the question of swarming, I should much thank you for a little advice. The hive is full, so full that after the whiff of smoke all the comb is covered, and there are yet bees on the floor-board. Up to the last thing at night a small but thick cluster of bees is to be found just outside the entrance. In the day a perfect cloud surrounds the flight-board, and though the entrance is an inch high it is impossible to see in for the moving mass. A strong honey-laden perfume is perceptible at a little distance. All this seems to tend to swarming, but I have not seen a single drone.

Another question is troubling me. I am about to move, and it is just possible I may not go far. How can I manage to prevent the bees from returning to the old spot? I have thought of temporary imprisonment, and a small aperture, but these are very poor remedies. If the worst comes, I take it I should move them for a while to a distance, and then bring them back when they have forgotten localities. I am now living in Birchfields, rather a bricked-up suburb, but the gardens and shrubs evidently supply what is wanted.

I have made one hive in exact imitation of those I had from you, and have further turned out flat-topped roof for the three. I propose to try by swarms and transferring to fill them this season.

An amusing instance of what can only be called the stupidity of the old school came under my notice last October. I have just heard the sequel. A gentleman had eight stocks in common small skeps; five were swarms and casts from the other three. I offered to purchase some for uniting, urging that they could not stand the winter. No, he did not care to part with any. I then urged him to feed and unite himself. No, he was very fond of bees, but had not time to attend to them. For the sake of the poor bees I offered to unite and attend to them myself. He thanked, but would not trouble me. Five died, and he has now again but three.—J. B., *Birmingham.*

[It would scarcely be wise to make an artificial swarm in the absence of drones, and the bees are not very likely to swarm naturally until they are sufficiently forward to be in time for the young queens appearing. A little waiting will probably solve the difficulty. At this, the swarming time of year, the removing of bees is an easy task. Let them swarm, or make a small artificial swarm early on a fine day, and stand it in the place of the old stock, removing the latter to the new locality it is to occupy, and at night, when the swarm is quiet, remove it also, and the thing is done. The philosophy of the move is that all the flying bees of the stock will have joined the swarm, and, partaking of its nature, will remain with it wherever it may be deposited.—Ed.]

QUEEN PIPING.

Before last month's (March) *Journal* came to hand, I was examining a bar-frame hive to see what stock of honey was left; after a good deal of disturbance I heard the so-called queen piping, just as at swarming time. I intended to write to you about it, but neglected till too late. Like a correspondent who wrote to you about that time, I thought I could not be mistaken, as the piping was distinct and long-continued. I have had the same experience twice since, although remarkable to say I never heard it till this year (unless at swarming time), although I have had bees about six years. Upon the last occasion, however, I discovered the impostor—a common worker—crushed a little by the quilt; the first time I was positive, my wife also assenting; the second time was in this wise. I put a last year's super with a little unsealed honey upon a hive, not the hive where I first heard the piping, for piping it was; and after a few minutes I removed it to a quiet corner, where the bees who had run up into it might return after going home. I

quietly emptied it, my reason for taking it away was lest they should take possession, and the queen ascend and breed in it. I had no sooner removed it, without smoking them before or after, than I heard the 'queen-piping' in it (the super), and had to at once return it, and shake out the bees into the large flat wooden top of their own hive, I completely emptied them all back. I expected to see the queen, but there was no queen. The third time I got the culprit in the act.—JOHN MAXWELL.

DRIVING.

With regard to open driving, is that the method you always follow in your apiary as the most convenient and direct? There appear to be so many advantages in the closed method that do not appear in the open one,—at least, to my mind; kindly give me your opinion. Is the Guinea Standard the same size inside as 'The Standard,' so that frames might be exchanged?

With regard to our prospects in the north, I am travelling the three counties a good deal, and I find everywhere that mortality has been very great, and a good many stocks are weak, though we find our artificial swarms of last June are much in advance of the natural ones. I may report a growing tendency to bar-frame hives.—G. R. I., *Kendal.*

[NOTE.—We wish our correspondent would favour us with his views on the advantage of close driving. Open driving was quite a 'happy thought' at the first Crystal Palace Bee Show, where we tried it for the first time, and astonished ourselves as well as 'the natives' with its extraordinary success. We always now (except in cold weather or by candle-light) adopt it, and never fail in finding a queen, or forcing a swarm, if they be there. All our Standard frames are as exactly alike as any things made of wood can be, liable as all such material is to changes through the weather.—ED.]

VARIOUS ITEMS—LIGURIANIZING.

In a letter sent shortly before your fire I asked you if you could give us any information in your *Journal* about the fertilization of queens in confinement. I suppose that most unfortunate fire destroyed all vestiges of the question. May I now remind you of it, and ask for an answer in your next?

I see in your last number you speak of a nadir as being an addition supplied to a hive either below or immediately above the floor-board. And you make the only distinction between 'nadirs' and 'ekes' lie in the size, or rather depth. Is not this rather mixing up things? And would it not be better to keep to the old distinction which we have been in the habit of making in Scotland, at least—a nadir being the name for an addition to a hive below the floor-board, and an eke any additional substructure to the walls above the floor-board?

Our stocks have wintered wonderfully well, thanks to autumn feeding; and now, with the help of spring stimulative feeding, the combs are well filled with brood, sealed drone-cells being plentiful in the end of April, whilst most of the hives are well stocked with bees. Artificial pollen was taken greedily until the middle of April; but since that time the meal store has been passed by with a buzz of contempt. Milk-feeding has succeeded admirably with the Ligurian stock whose queen I got from you last August, and who was 'a wee dour' to begin breeding this spring.

We have had some magnificent weather for the fruit-blossoms, the thermometer standing last Sunday at 75 deg. Fahr. in shade—higher than it registered the whole of last summer. Unfortunately, the weather has again broken during the past two days into cold east wind and rain. But if it shortly takes up again we may expect early swarming.

There is a half-breed Ligurian stock in the apiary, the wickedest 'craturs' alive—'far waur nor wasps.'

Having paid the 10*s.* 6*d.* subscription, I now enclose a stamped and directed envelope for reply to this question: How and when would you advise me to ligurianize one black stock in bar-frame hive, and two in Stewarton boxes, from one Ligurian stock in bar-frame hive?—J. I.

[If no increase is desired, we would catch and kill one of the black queens, and introduce the queen from the Ligurian stock in her stead, and about eight days after would destroy the other black queens, and after the lapse of twenty-four hours, when the bees will have become aware of their loss, a ripe queen-cell should be given to each of the queenless stocks. If increase *is* desired, the Ligurian stock should be artificially swarmed, and seven days after the others should be similarly treated, and a queen-cell from the Ligurian given to each. This will have ligurianized the old stocks, and afterwards when the swarms have established themselves they should be treated after the manner first described.—ED.]

EARLY SWARMS.—WALLFLOWERS.

We have fed our bees, nine stocks, all through the winter, till within the last ten days. They appear to be very strong, and look like swarming. There have been several swarms in the neighbourhood at outlying farms. Much is said in favour of wall-flowers for bees, and justly; may I suggest a plan we adopted last year late in the season of raising them from slips in the same way we get the double ones? We have now a good patch of beautiful plants struck as late as August, and some in the winter indoors taking the place of those that have been blooming for months. We are now sowing to get one crop to follow another.—H. M., *Micheldever, May 4th.*

'DASTARDLY ACT.'

Subjoined I send you a few lines from the *Essex Weekly News*, entitled as above:

'Late on Saturday night, the 11th inst., or early on Sunday morning, a most dastardly act was committed by the wanton destruction of eight skeps of bees belonging to Mr. Daniel Spooner of Burnham, Essex. This was effected by placing burning tobacco under the hives. A liberal reward has been offered for information, that will insure the conviction and well-merited punishment of the offenders.'

What a pity the bees did not administer 'lynch' law to the latter!

Bees, in the locality of Rochford, are doing well; several swarms the early part of this month and a good income of honey, which I trust will last during the approaching season.

Two farm labourers were at work in the fields, and a swarm came and alighted on the hedge, and the former not being prepared with hive or skep, they had recourse to the *pail basket*, in which the bees 'settled,' and were brought to the cottagers' home.—DAVID LING, *Rochford, Essex.*

HIVE RIGHTS.

Enclosed I beg to hand you P.O.O. and stamps to settle account (May 22nd), a receipt in due course will oblige. I answered an advertisement in the *Bee Journal*, which led to me selling two hives to a gentleman in Hertfordshire. I have a note from him which alludes to an authorised maker, which leads me to think that your hive is probably a registered one. The hives in question were made from one of yours for my own private use, and not for the market, but having left the country and being unable to meet with a garden suitable, I was induced by the advertisement to offer them. If you have any restrictions upon the sale of these hives, kindly let me know, as I do not wish any unpleasantness.—G. P. S., *Leicester.*

[NOTE.—There are no restrictions on the manufacture or sale of any hives or bee-furniture in Great Britain, there being no patents or registration affecting them. We take it as a compliment when gentlemen make, buy, or sell hives of our patterns, and only feel aggrieved when they copy them and call them by their own names. That is a snobbishness we cannot approve.—ED. *B. B. J.*]

FOUL BROOD CURED.

I am pleased to tell you that the stock which had foul brood last September, and which I treated according to your directions in the *Journal*, has come through the winter in very good condition, and is now doing well with no sign of foul brood.

All my stocks survived the winter, but robber bees ruined my weakest stock a week ago. I have managed to save the queen so far, and hope I shall be able to keep her until my first swarm issues, when I shall introduce her to the old stock. No swarms here yet (21st May), though we shall have them I think as soon as this bad weather leaves us; some of my stocks are now raising queen-cells. I found several cells being raised in a skep (the only one I have with bees in) yesterday, when I turned the hive over to examine the stock. I also found some drone brood sealed over at the bottom of one comb, but I have seen no drones yet.

The feeding-box for barley sugar, described by J. H., Vale of York, in May *Journal*, is a very useful one. I have one like it which I have used every winter since I began bee-keeping, and I believe that the gentleman who gave it to me has used similar feeders for many years in his apiary.

Wishing you a prosperous year with bees and subscribers, I remain—ISAAC LAKE, *Selop.*

BEES IN GREENHOUSES.

I am very much troubled about my bees; for so many die in the greenhouse. Last year we swept up hundreds daily. After they have been there a short time they seem to lose all power in their legs, and will lie as if under the influence of some narcotic. I have very few flowers in bloom just now. I have looked in your *Journal* and other bee books, and cannot find any account of poisonous flowers. I should be very glad if you can give me any idea of the cause of it. I have only two hives left, having lost seven this winter; and I do not like to see them dying in this way. I have no doubt some of my hives have been eaten by mice, for I found one the other day. I did not know they could get in. Will it hurt the bees if I put poison about for the mice? You will see I am ignorant amateur, though I have kept bees for eight years, and try by reading your *Journal* and watching them to learn something more.—M. A. H., *North Wales.*

[It is unfortunate, but it is a fact, that the odours of the flowers and plants perfected in greenhouses when the outside world is comparatively bare issue only from the openings that are made through the moveable lights or sashes that are devoted to ventilation, and these being comparatively few the bees have only those openings as means of approach to the nectaries so tempting to their cupidity. Having, then, entered a greenhouse by a way promising large results, it is not difficult to imagine that the bees indulge their natural propensity, and load themselves with the treasures offered; but when they endeavour to return there is not a breathing odour to direct them as when they entered, and not understanding the difference between clear glass and clear air they fly against the former as if 'twere the latter, and beat themselves against it (the glass) until their physical energies are exhausted, and then they fall to the ground, and, lacking sustenance, become moribund, or 'as if under the influence of a narcotic.' Mice may have helped to rob the bees of their sustenance, but poison for them is not likely to injure the bees, unless it be offered in the form of poisoned honey. Gauze netting over the ventilators would prevent the mischief.—ED.]

FERMENTING FOOD.

I have a question to ask relative to a stock of bees, and shall be much obliged if you will advise me what to do with them. They are in a frame-hive, and one of my strongest stocks till the last month. I commenced to feed them about five weeks ago; but they did not take the food, and I found a day or two afterwards that the food had fermented and run over part of the combs and out of the hive in several places. This caused the other bees to attack them, and as soon as I found out the cause I proceeded to rectify it. I took the food away, cleaned the hive, and planed over the floor-board, and thought all would soon be right. I also noticed the queen, and saw that they had sealed brood on one of the combs; but as they did not settle down to work again, a day or two afterwards I opened the hive again, for I thought from their outward appearance they had lost the queen; however, she was on the brood comb, and seemed all right, but there was no increase of brood. I have looked at them several times since, and to-day I have had another inspection in order that I

might be able to tell you their condition. Very little brood had hatched out, and that that had were drones bred in worker-cells. There was a little fresh brood to-day, but most of the old was dead, so that I took the frame out altogether, and moved the others up close.—F. B., *Shifnal.*

[We are rather at a loss to discover the connexion between the fermenting food and the drone-brood in worker-cells, with the queen 'all right.' Fermenting food, and that which has been burnt in preparation, will speedily cause decrease in the numbers of the bees, and the constant dripping of such food into the hive amongst the brood combs will soon render them untenable from coldness, but we fail to see a reason in that for the drone brood as above stated. There is a possibility that the queen is an old one, and having become useless, has lost the dignity of her position, and that the bees are breeding in her stead. This idea was suggested to us in a somewhat similar case by the Rev. W. C. Cotton, when on a visit to our apiary a short time since. He is a great authority, and perhaps the notion may bear itself out in your case. You did wisely in removing the dead brood, which might have set up the disease 'foul-brood.'—Ed.]

BEE-KEEPING IN IRELAND.

I have five stocks of Ligurian bees, they have taken twenty quarts of milk and four stone of sugar this spring. My hive is the same as the Abbott Hive, except the sides, which are not moveable; the cover is a little larger, so as to cover a super large enough to receive ten frames, the same as used in stock-hives, and a quilt laid over the frames, so I can take out combs without any trouble, extract the honey, and put in the combs again. I have four supers full of clean empty combs from last year, so I hope to catch some honey this year. I have worked very hard for the last five years, and got very little honey yet. But thanks to the *Bee Journal* I think the Editor could not have his hives better prepared for a honey glut than I have them at present. I have a glass hive in the shape of a lean-to green-house, and it is always the strongest hive.—Br. J.

AN OUTSIDE OPINION WANTED.

Will somebody kindly explain the eccentric behaviour of my bees? I have English bees in three common straw hives (with holes at the top for feeding purposes). The hives are in a large wooden shed, with doors behind and very small holes in front. This morning I went up to them to replenish the feeding-bottles, and found numbers of bees on the board in front, and quantities of dead ones behind, and numbers flying about. They continued in a most excited state till late in the evening, but when I went a second time all the dead bodies had been cleared away. Several of the bees were fighting, but numbers were simply doing nothing but flying about in great excitement, nothing seemed to quiet them. Can it be that they are already preparing for a swarm, or is it likely that they have not room in their hives? I do not think it was simply a bee-fight, as we have seen many, because there was no fighting after about twelve o'clock, and they were in quite as much excitement at five.—*Osmestry, April* 28.

THE LANGUAGE OF BEES.

Very wonderful and remarkable are the attainments of which bees are capable in the way of communication. The watchers who are kept by bees at the entrance of their dwellings day and night in the summer time, have, among their other duties, the task of forwarding news from outside into the innermost recesses of the nest. According to the observer, De Fravière, they possess for this purpose a number of voice inflexions produced by the air-holes of the breast and the hinder parts of the body. Each inflexion of the voice has a particular meaning. As soon as a bee arrives with important news, she is immediately surrounded. She utters two or three shrill sounds, and touches one of her companions with her long, flexible, and sensitive antennæ or feelers, which have no less than twelve or thirteen joints. The companion transmits the news in the same way, and it is presently spread over the whole nest. If the intelligence is of a pleasing nature, for example the discovery of a store of sugar or honey, a flowery field, etc., everything remains in order, but the greatest agitation ensues if the news is of an alarming kind, or if a strange insect threatens to force an entrance into the nest. It appears that such news is communicated, first of all, to the queen, as the most important person in the state.

The language of bees is doubtless a speech of sounds as well as of gestures, and it can be unhesitatingly stated that they can communicate with each other not merely in a general manner, but on definite and varied subjects. The discovery of a treasure of sugar or any other kind of food by a single bee is followed by the arrival of a hungry swarm in a very short time; it is clear that this result can be gained only by communication between the first bee and his companions. Landois, whom we have mentioned above, says that when a saucer of honey is placed before a bees' nest, a few bees immediately come out, and begin to utter their peculiar sounds (*tüt, tüt, tüt*). This sound is rather loud, and of the same kind as that made by a bee when it is caught. At this call a large swarm of bees assemble in order to collect the offered honey. In the spring the bee-keeper places some water in the neighbourhood of the hive, for the bees require it for the preparation of food for their young when the hatching begins, and it would be difficult for them to fetch it from a distance. In order to draw their attention to the water, he has only to hold a small stick smeared with honey before the entrance, and to carry the few bees which first come out to the spot where the water is placed. These few are sufficient to make known to the whole colony on their return to the hive the existence of the water, and also the place where it is to be found.

Bees, however, can best understand one another by means of their antennæ or feelers, which they use in various ways. The best way for observing their communication is to take the queen-bee from a nest. In a little time, perhaps an hour after the sad event, it becomes known to a small part of the colony, which immediately leaves off working, and begins to pass restlessly to and fro, but this applies only to a part of the nest, a single comb. Soon, however, they come out of the small space in which they have been searching, and, meeting companions, they cross their feelers and touch one another gently. The bees who have, till the contact of their feelers, become disturbed in their turn, and communicate their disturbance and perplexity in the same way to other parts of the dwelling. The disorder increases, spreads itself over to the other side of the comb, and at last among the whole population, when a general tumult takes place.—*Leisure Hour, January*, 1878.

A good little boy who was kicked by a mule didn't swear about it. Not he. But he led the mule to a bee-hive, backed him close to it, and tied him! That mule kicked like lightning for three-quarters of an hour, and couldn't stop if he would. Bees are little, but——!

Echoes from the Hives.

Liff, by Dundee, April 25th.—Bees in Scotland.—'My estimate that nine-tenths of all the hives in Scotland have died during the season, is quite confirmed by latest accounts from all quarters. We are hopeful of great results from those left. To-day I have stocked a new hive fitted for side storing sections; this gives facility for examining the frames at any time. After swarming is controlled, the sections may be also set over the frames. I am rather hopeful about it.'—W. R.

Sheffield, April 28th.—'I enclose my subscription for another year's *Journal*, thanking you for your courteous and ever ready responses to my occasional appeals to you for assistance. Since I commenced bee-keeping—some five or six years ago—we have not had so favourable an April for the bees as the present month has been. My usual experience has been to find some dozens of the poor insects lying of an evening, chilled by the frosty air, in front of their hives, many laden heavily with pollen; but this year I have scarcely noticed a single exception. Some of our fruit trees are in full bloom, and others are ready to burst forth, so that, if it be fine, we shall, I fancy, have earlier swarms than have been for some years, notwithstanding the miserable experience of last season.'—J. J. H.

May 8th, 1878.—'I got the Ligurian safely last night, for which many thanks. I am delighted with them, and feel certain the "blacks" will be put into the shade by them with those who can afford them about here.'—E. W. L., *Kirkburton.*

Macclesfield, May 15th.—A Wail for 1877.—'I have spent about 6*l.*, and am the lucky possessor of one hive of bees, four or five empty skeps, and two bar-frame hives empty, and have not had one pound of honey; I commenced twelve months since. I should like a swarm of Ligurians, but having spent so much, I am afraid to invest more, and do not expect to have any given me. Rather an encouraging start for a new beginner, is it not? Your hive is much liked.'—J. T. M.

Kelvedon, Essex, May 21st, 1878.—'I have been writing to the local newspapers to try and induce the bee-keepers in my neighbourhood to adopt the more humane system. I have written three letters, and three papers have inserted them; I shall send the fourth next week. I am afraid I must not send you a copy, as I do not speak very highly of bar-frame hives. The bees up to a few days since were making rapid progress. I have eighteen nadirs placed under. Several of the hives had begun working in them till the cold and wet weather stopped them. I have a fine glass working, about a 25lb., and several super and side boxes. The season gives promise of a very abundant honey harvest, of course depending on the coming weather. I have an abundant supply of food all round. The beautiful yellow blossom of the turnip, white and Swedish, cabbage, kale, broccoli, &c., with their varied tints, are enough to make a bee-keeper's heart rejoice. There is enough food within range of my hives for half a thousand stocks.'—W. T. Braddy.

Banbury, May 21st, 1878.—I enclose herewith stamps, 6*s.* (and 2*d.* for post-office commission for converting them into cash) for *Bee Journal* for twelve months, from May 1878. Thank you for sending me the May number before paying for it.

I commenced the winter with twelve stocks of bees, and was so fortunate as to lose only one, the remaining eleven are all in healthy condition, and some are strong in bees, but we have not had any swarms in this neighbourhood yet, and think that while such high winds and heavy rains prevail as we have had for the last few days they are best in the stock hives.—J. E.

Chippenham.—'I wish some plan could be devised for the sale of surplus honey. I have two nice supers of last year now, which I cannot dispose of here, and would let any one have them at any reasonable price—say 8*d.* per lb., purchaser to pay carriage and return the supers as soon as possible. Would not some respectable tradesman in London undertake to sell on commission or otherwise? if he would, he should have all I get this season at a moderate price on purpose to try and break the monopoly which appears to exist at present.'—R. W. Ll.

Bees at Denmark Hill.—'It may interest some of your readers to know that at the above address, *only four miles from Cornhill*, I have already at this early season of the year (May 10th) hived a splendid swarm of bees; they left the hive at 4 p.m. and are very actively at work in their new home.'—Walter R. Tidd.

Cheswell Grange, Newport, Salop.—'I have ten stocks, all in Woodburys, doing *very* well. I have lost three stocks; one of the queens I fancy was not fertilised, it being a very late swarm, one was an old one, and what happened to the third I know not. They were all right a fortnight ago, taking their food well, but suddenly disappeared. The late fine weather has helped them very much, and some of the stocks are increasing in weight well. I am sure the bee-masters must be very grateful to you for all your trouble.'—J. R.

Walton.—'I have two stocks, one being a swarm which was thrown from the other last year; both appear to be in good condition, well stocked with brood, and are commencing to store honey. Last month I transferred the old stock from an old bar-hive to a bar-frame hive, tying the old combs into the frames, they have now fastened them in, and are working very hard; if the weather continues fine I look for early swarms.'—J. B.

Yorkshire.—'I have been fortunate enough to secure every number of the *Journal* since its first issue, which in my humble opinion contains the best information on the management of bees that has ever been published in this country.'—John Hartley.

'I am glad to say that on opening the hive which I feared was queenless, to unite it, I found her majesty "all alive oh!" and the queen-cells destroyed. She had been lying out on the ground, with about a dozen attendants who had found her, for sixteen hours, and yet recovered.'—'Dr. Pine.'

Maryport.—'I got no honey last year—three out of five hives still alive, and I expect all right now. I have been troubled with the bees dying or killing one another on the top of the bar-frame hives when feeding them with feeder and bottle, through the quilt on one of the hives.'—R. W. B.

Thirsk.—'I send you a P.O. order for 10*s.* 6*d.* as my subscription to your admirable and most useful *Journal*, to which I wish an ever-increasing and well-deserved success.'—E. M.

Marlborough.—'My first swarm came out on the 18th of May, and was hived in a Standard. The weather having been so bad I have fed them continuously, and they appear to be doing very well.'—F. J. Leader.

Bees in Perthshire.—'Bees have, in most cases, done very badly in this quarter. Bee-keepers have got quite disheartened, nothing but death all over, with only a few exceptions; but where care was used, a few have managed to bring their stocks through. There are no natural swarms as yet, as the hills have a white coating of snow, last fortnight being mostly very cold and wet. I have only one swarm ripe for coming off, being very strong, and a good many drones. I see none here so far forward as your humble servant's.'—A Lover of Bees.

Killin, Perthshire.—'I am sorry to say that the fears which I expressed to you in August last were far from being groundless, for since then there have five hives died out for every one that has lived. I lost none through want, but I spoiled two when preparing them for the winter.

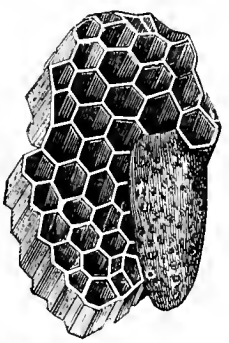
'I have been feeding (from below) every night for the last five weeks, about a gill each night, and they are now strong in bees, and drones flying about when there is a blink of good weather; and although it has been very wet and a good deal of thunder. For the last ten days I have not seen any dead white bees thrown out; but I am sorry to say that I am the only bee-keeper hereabouts that can say so much, for they all work on the "sink-or-swim" system.'—J. W.

Holl by Fochabers, Morayshire.—'Last season has been a trying one for the apiarians here as elsewhere; as far as I can ascertain fully one-half of the stocks kept through the winter have perished, some have lost all, and some five out of six. I have lost none myself, but have one rather weak, and three stronger than any of my neighbours'.'—G. F.

Bee-houses intended for more than one hive are expensive luxuries. Every one with a 'bee-house' fancies (as a rule) that any number of stocks can be safely stowed in it, and, as a consequence, the bees are crowded, and soon get on too friendly terms, hence a row, fighting, and ruin.

Queries and Replies.

Query, No. 243.—Would you kindly answer the following queries in your next *Journal*? What part of a comb are royal cells generally found on, and how are they distinguishable in size and appearance from other cells? We have had a long tack of drought here, but at the same time cold east winds. To-day it is raining, and it is to be hoped it will bring us warm weather.—John Wood, *Killin, Perthshire.*



Reply to Query No. 243.—When royal cells are produced by strong colonies of bees about to swarm, they are generally built on the edges of the combs, either at the sides or bottom. They are often, however, under other circumstances, built in the body of the brood-nest whenever there is a convenient place for forming the protuberance without interfering with cells on the opposite combs. They usually present an appearance similar to the engraving, but stick out or hang at all sorts of angles.—Ed.

Query No. 244.—I have a stock that lost its queen. They are Ligurians, which I received from you: I have given it a bar of brood twice; they have built queen-cells, but have reared no queens, please let me know how I may proceed further.—W. B.

Reply to Query No. 244.—Having built queen-cells it is somewhat singular that no queen has been reared. The probability is that queens were reared, and lost in the attempt to obtain fertilization. If no queen-cell can be obtained from any newly-swarmed hive, it will be well to give another comb of brood in all stages now that the weather is more promising. A ripe queen-cell from another hive would hasten result and save about ten days' time.—Ed.

Query No. 245.—Hive-making.—As the Makeshift Standard which I got from you last year is the only bar-frame hive I have seen, and as I intend making two as near as I can like your 'Standard' Hive, I shall be much obliged if you will answer the following queries in the June number of your *Journal*. I may mention that I cannot understand the instructions given in the *Journal* on these points.—John Wood, *Killin, Perthshire.*

1. What space should there be between the inner and the outer cases? are they made fast to each other? and are the bees allowed into the space between them?—*Reply.*—Any possible amount of space may be allowed between inner and outer walls of hive, but it should be dead, *i. e.*, there should be no possibility of circulation of air between the walls. The bees have no right of entry to the dead-air spaces.

2. An explanation of the moveable hive sides?—*Reply,*—The moveable side is not possible in the Makeshift, which is simply a case to hold a few frames of best type while better hives are being prepared; although, if the advantages of the moveable side are not desired, the Makeshift is as good as any other ordinary hive, subject to a little outer protection.

3. Which of the inner or outer cases should be highest? and how much?—*Reply.*—The outer cases should be as high and low as the hive itself, and overhang the floor-board to keep it dry. The air-space at front and back should be wide enough to allow the outer casings to stand up clear of the frame ends.

4. Are the frames strong enough as they are put together in the 'Makeshift'?—*Reply.*—The frames of the Makeshift are made in the same style as those of the best, and are interchangeable.

5. Would a single-walled hive, made of 1¼-inch wood, be warm enough in winter?—*Reply.*—A single-walled hive, 1¼ inches thick, would not be so warm in winter or cool in summer as one with double ½-inch walls, and ¼-inch dead-air space between. Warmth in winter is a question of degree.

6. How do you cover the ends of the frames in a single-walled hive so as to exclude wind and cold?—*Reply.*—The ends of the frames do not suffer from wind or cold, and neither one nor the other can get between them into the hive; the frame ends being close-fitting and self-adjusting.

If a lateral space-maker is desired on the new hives you are about to make, make the hive of sufficient additional width to take a dummy frame at one or both of its sides, so that by its or their removal the object achieved by the moveable side will be obtained. In making a dummy, form it of two thicknesses of wood: the grain of which shall cross each other, and let them be well nailed and clinched.—Ed.

Query No. 246.—A Beginner.—Drone Trap.—I started bee-keeping last summer. On the 24th of July I purchased two stocks, and one nucleus of Ligurian bees; I moved the bees from the four-barred nucleus into two ten-barred Woodbury hives. My three hives wintered well. I observed drones in my best stock on the 26th of April, which stock I artificially swarmed on the 7th of May; they are all doing well. I found that my bees took the pea-flour very freely up to the 12th of April, after which time they would hardly look at it. My hives are the first bar-frame hives that have been seen in this village, therefore many of the cottagers are very anxious to see how they answer. My groom took a very strong natural swarm yesterday (May the 18th), and he has another hive which will swarm in a day or two.

Is there any drone-trap made that can be applied to a hive without removing the alighting-board, as in the only trap I have seen, it was necessary to either take the hive off the bottom board or remove the alighting-board?—Capt. C. A., R.N., *Hurstbourne Tarrant,*

Reply to Query No. 246.—The Aston drone-trap is the best we have seen, and the difficulty experienced may generally be overcome by turning the floor-board hind part before, thus presenting a front which has no alighting board until the drone-trap itself forms one. With floor-boards having sunk entrances, this is not so readily available. The 'Cheshire' drone-trap, invented by C. Edwards, Esq., would, in such case, probably be effectual. In the Aston trap the drones go downward, in the Cheshire upward, in all other respects, the principle is the same.'—Ed.

Query No. 247.—Preventing Swarming.—I am in great perplexity. Last year I could not prevent my bees from swarming; then I put it down to my not putting extra room on in time. This year I determined to be in time, and have had a hive under each of my twelve stocks for about a month, when to-day, to my great annoyance, a swarm rose. Can you help me? I did not want swarms, but honey; and as I have laid out a good deal of money in frame-hives and sugar, I wished to pay my expenses this year, but cannot see my way to it if I cannot prevent swarming. I am sorry to trouble you again, and hope you will excuse. —Fenny Stratford.

Reply to Query No. 247.—The principles which govern the swarming mania not being yet understood, no method has been discovered by which natural swarming can be absolutely prevented or controlled, and the most that can be done is to render it as unlikely as possible. Bees, as has been so often said, will swarm out of a church tower, where there is unlimited space, and hence it can scarcely be wondered at if they swarm from hives. The best advice we can give is to return the swarms in the evening after swarming, having previously clipped the queen's wings and cut all queen-cells from the hive. A few days' confinement of the queen and a second cutting out of queen-cells, if any be formed, would probably tide over the swarming propensity. If when queen's wings are clipped an attempt be made to swarm, the queen should be sought on the ground in front of the hive, where she will be found surrounded by a small knot of bees, if she has not been licked in by a toad or snapped up by a bird.—Ed.

Query No. 248.—I should feel obliged by your answering the following queries in the *Bee Journal*:—

1. The frames I am adopting for my apiary are the same size as the Standard, but for a hive only nine inches deep, they have no bottom rail, and eight frames in a hive. I intend to work on the doubling system with extractor; now, if I found it advisable to use larger hives, could I not shift frames and bees into a large box eleven inches deep, and for ten frames?

2. In doubling with these hives would it answer to put one stock bodily on the top of another, taking away one queen and keeping her in a nucleus hive until the autumn, when the stocks would be divided, and the queen given back?

3. Would it be a good plan to hive two swarms separately in two hives, nine inches deep, and placing the one on the other, to form one stock as in the Stewarton system, only put no supers on, but extract from the upper hive?—A. W., *Hereford*.

Reply to Query No. 248.—1. Having no bottom rail, the frame ends for the nine-inch hive may reach to within a quarter of an inch of its floor-board, in which case they will be readily receivable into an eleven-inch hive; but when the combs have been lengthened they cannot be returned to the nine-inch hive without being reduced.

2. In doubling, the principle involved is that suggested —the two hives having stood side by side, or one of them having been brought from a great distance. Keeping the queen in a nucleus for all summer will not pay, it would be better to let her have a small swarm of her own bees to work up into a stock.

3. This appears to imply the doubling principle with new stocks; we would rather have a set of old combs on top for extracting. If the swarms are intended to be put together on the evening of swarming, as in the Stewarton system, the bottom hive would be better removed, and the two swarms allowed to work in one, and then we think we should prefer to put on supers.—Ed.

Query No. 249.—Guides for Frames.—I have to-day been putting the wax-guides into a Standard hive, preparatory for a swarm, and shall be much obliged if you will answer a few questions respecting the operation. Into five of the frames I have put combs, but in no case had I a sufficiently long piece to reach the whole length of frame. In three of them I have therefore put the comb in two pieces, leaving a space between each. Should I have left this space? In the other two I have only put one piece in centre of frame, six inches and seven inches long, by three inches deep. Should I put any sort of guide for the end of these pieces of comb to within half inch of end of frame bar? I have fastened the comb according to directions in 'Leaflet,' and they appear very firm. In three more of the frames I have put impressed guide, and in the two outside frames simply a line of wax along centre of frame. Does it matter having the different guides in one hive? I have put the comb and impressed guides alternately. Worker-comb is in four, but drone-comb in fifth (second for outside of hive). Should you advise me to keep this drone guide, or to substitute another for it? Would the bees fill this frame with *only* drone comb if left? Upon receipt of last *Journal* I supered a hive I do not want to swarm, but the weather has been so cold, the bees have not taken to it. Should I have removed it, and about how many sections should I have put on at first? I hope we may have a better honey season this year than last.—A Wiltshire Bee-keeper.

Reply to Query No. 249.—The guides of comb need not be continuous, but the nearer they are to each other, the less likelihood will there be of crooked building. Guides of alternate comb and foundation are equally good, and when long and short guides are alternate, straight combs may be fairly relied on. The first method of ensuring straightness (in America) was to place straight old frames of comb alternately with empty frames, and the bees being thus, as it were, compelled to build straight between the old combs, the latter were removed, and the bees again compelled to build others straight between the new ones. It is not advisable to place drone-guides in the stock hive, the bees will be sure to build a sufficiency of it. The bees will fill the frames with comb, as they are influenced by the weather and the incoming of honey—if the income be sparse they will (as a rule) build worker comb, if plentiful, drone. Six sections are sufficient to tempt bees up to the super, a larger number may cause the apartment to be too cold; and, when once occupied and the bees at work, it is easy to increase the size of it. We are hoping that 1878 will produce great things.—Ed.

Query No. 250.—I should be glad if you would let me know (1) whether a swarm would do if moved four miles a fortnight after being hived. The reason I ask this is because I have bought a first swarm of a man in the country for 6s., I to find hive, and being there the other day, I saw the stocks carrying in pollen very fast from a garden of turnip or cabbage seed. I thought it would be an advantage to me for them to stop there for that time; there is a large bean-field on the one side, and a clover field on the other. Weather a little better in

our part to-day, but still unsettled?—JOHN VENABLES, *Wellington, Salop, May 11th.*

REPLY TO QUERY No. 250.—It will be perfectly safe as regards the bees, for they will scarcely be likely to return to their former home four miles distant; but the removal will have to be carefully done, or the combs being new and tender, will break down if jolted. Give the bees plenty of ventilation while removing, and for an hour or two before, and carry them slung on a pole that will bend a little, so as to give play when carried between two men. Be careful not to turn the hive on its side.—ED.

QUERY No. 251.—*Pollen carriers.*—Please to answer in June *Journal* if bees always gather honey when they have pollen; mine go by six and eight at a time loaded with pollen. Being some distance from any fields, I am afraid they take in more pollen and less honey than if in the country?—H. B., *Walworth.*

REPLY TO QUERY No. 251.—Bees carry both honey and pollen at this time of year, as you could prove if you were to kill a pollen-laden bee and examine its honey sac. That bees will sometimes carry pollen alone, is proved by their taking in the substitute offered in early spring when there is no honey to be found abroad, but it must be much more convenient to them to be able to moisten their tongues with honey in the same flower from which they gather the pollen.—ED.

QUERY No. 252.—Being a bookseller, I procure my *B. B. Journal* through the trade. Does that entitle me to answers through the columns of the *Journal?*—C. B. *Dudley.*

REPLY TO QUERY No. 252.—We are always glad to give information through the *Journal*, whether to subscribers or readers only, and we gladly welcome 'queries' for that purpose. We profess to give the fullest possible, and every query may elicit a reply that will convey instruction to scores of readers; so pray don't hesitate.—ED.

QUERY No. 253.—*Putting swarms in place of stocks.*—Will you kindly answer as early as possible the following query? I had a strong swarm from a straw skep on Sunday, and at night placed the swarm in the place of the old stock, removing the latter a few yards off. I have found every morning at least a handful of dead white bees on the alighting-board. I suppose there is not enough bees left in it to keep the brood warm, as they have shown little signs of work since. What shall I do to remedy it? Will feeding be of any use? Shall I place it on the stand of a strong hive, or leave it to take its chance? I do not wish to lose it as it is my best stock; so please reply as early as you can?—J. C. W., *Cheshunt.*

REPLY TO QUERY No. 253.—All the mischief possible has been done during the three days that have elapsed. Narrow the entrance so that only two bees can pass, and keep the hive warm. Feeding may help it a little; but there is hope in the fact that there are sufficient bees left in the hive to cast out the chilled brood. Be careful to feed the swarm, as during the bad weather it will be more likely to suffer.—ED.

QUERY No. 254.—First of all I am greatly obliged to you for all the information I have got from the past year's *Journal.* I hope some day to be a better subscriber. The second Ligurian queen I had of you last year I got on with very well indeed, but it died something like J. Hartley's, query No. 224, of March *Journal.* With plenty of stores, some of the frames weighed 5 lbs., when there was only about half a pint of bees left, and I could not find any brood or queen, so I think she died at some time about Christmas, and the bees—black ones—took to robbing these stores, so I have taken the hive away, united the few bees left, and now I shall try my hand again for the third time, and hope I may be more successful. Mr. W. Carr, in the *Journal* for March, begins with linden or lime, he says it is such a good honey tree. There are, I should think at an old estate called Sutton Place, beginning at about three-quarters of a mile from me, some two or three hundred fine old lime-trees. Now do you think my bees will profit much at that distance; their flight is in a south-westward direction from my house. All meadow land; I am rather on a dry hill.—S. SPOONER.

REPLY TO QUERY No. 254.—Undoubtedly the bees will go three-quarters of a mile or more, for lime honey in quantity, provided they cannot get a better supply nearer home. If the meadows surrounding you happen to be 'white with clover' in the lime season, the latter may whistle for customers, for the bees will scarcely heed it.—ED.

QUERY No. 255.—COLLATERAL HIVES.—I have two stocks in the octagon Stewarton hives, but I have found the slides utterly unmanageable. Collateral hiving would seem to me to involve less toil to laden bees than climbing up so far with their loads.—W. A. B.

REPLY TO QUERY No. 255.—So thought the late Mr. Nutt, and his 'Pavilion of Nature,' with its super and wings was the outcome; but although he wrote a book to prove that it was the most convenient arrangement, the bees would not believe him, and his Collateral Hive is now a drug in the market.—ED.

QUERY No. 256.—Would you be kind enough to inform me, 1st, how to pack supers so as to prevent the combs from breaking down in transit; 2nd, how to prevent the syrup from running down into the hive when feeding, seeing that you advocate the hive being raised an inch at the back; 3rd, what is the best width of a sectional super? 4th, I have seen in many articles statements that Ligurians are larger than the blacks, but I do not find it so with mine?—FARNHAM.

REPLY TO QUERY No. 256.—In reply to No. 1, our leaflet on 'Packing Supers' was forwarded.

2. A very trifling wedge-shaped arrangement would overcome all the difficulty, but if thought insuperable, it would be better to feed on barley sugar.

3. Two inches, that being the average width from centre to centre of combs naturally built in supers.

4. There are as many differences in the size of various strains of Ligurians, as of blacks, and a good deal may be said on both sides.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

SHEFFIELD.—It is a matter of indifference whether P. O. Orders are made payable at Southall or at any other place. They all pass through our bankers, and it is not even necessary for us to sign them, therefore, when sending, correspondents need not give the name of the sender, nor to whom payable; and if they will cross the orders as if they were cheques, safety will be almost guaranteed. OUR difficulty is not in the DISPOSAL of cheques and P. O. Orders.

G. F. (*Holl by Fochabers*).—Abbott's Standard frames are 2*s.* 6*d.* per dozen, in pieces, ready for nailing together. Lee's, at 1*s.* 6*d.* per dozen, are of the Woodbury pattern, mortised ready for glueing. The moveable side of the Standard hive serves as an inner wall when shut up. The floor-boards are considered reversible because they are the same on both sides; and if from any cause one side gets wet or dirty the other side is constantly presentable.

*** We are reluctantly obliged, chiefly owing to the large amount of space occupied by the 'Queries and Replies' this month, to postpone the remainder of 'Skeps and Bar-frames,' and other important communications, till another opportunity.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 63. Vol. VI.] JULY, 1878. [Published Monthly.]

Editorial, Notices, &c.

JULY.

The past month, though in its early days rather unkind, was not positively destructive to bee life, yet only in very favourable situations was there any prospect of early and well-filled supers; but on the 20th the weather set in as charming as it was possible to be for the production of honey, and happy were the bee-keepers who, by wise and timely feeding, had observed that first great rule in bee culture, 'Be sure to keep your stocks strong.' With such glorious weather, even though it occurred in the interval between the fruit and white clover blossoms, a great influx of honey was caused from sources that but for the great heat would probably not have secreted a drop, and hence the hedgerows and waysides were frequented in a marvellous way, and even garden flowers furnished a quota that provoked the cupidity of the little snappers-up of unconsidered trifles. The wild roses and blackberry blossoms have been specially visited, there being good numbers of them in this neighbourhood; and presently, when the limes and white clover assert themselves, as we most sincerely hope they will, there will be no lack of supers, and we trust nothing to prevent 1878 becoming a memorable one in the annals of apiculture.

Work for the Month.—Take care to give plenty of space in which bees can work, either in supers, nadirs, or side boxes, according to the system adopted.

Provide shade for exposed hives, or the heat of the sun may cause the combs to drop in a heap. Be careful in this respect not to leave a hive uncovered for many minutes, or the sun shining directly upon it may do great mischief.

Provide water in dry neighbourhoods; a pan filled with moss, or deal sawdust, and kept wet, is acceptable, especially if a little salt be added.

Don't be afraid to use the Extractor, if honey-getting is the object.

Swarms may be supered as soon as their hives are filled with combs, or nearly so.

It is usually recommended that casts or after-swarms should be returned to the parent hive; but if increase of numbers be desired we would keep such as weigh over two pounds as, being all young bees, and having a young queen they will, if the queen survives her marriage trip, make good stocks; they should be put into hives with only a limited number of frames, until they are filled with comb, which will be nearly all worker comb, and then more space, or other combs, can be given.

If a glut of honey is perceived, and the bees show signs of great heat in the hive, give ample ventilation at the bottom of the hive. In Abbott's hives on legs, pull out the wedges and let the floor-board down both at back and front; in others prop up the hive along the whole front during a honey glut, and while stocks are strong, there will be no robbing.

Don't give upward ventilation while comb-building is going on in supers.

Stocks that have swarmed should be watched to see if they have fertile queens. Do not be satisfied with seeing them carry pollen; it is a delusion to suppose that to be a sign of queenly presence; to our sorrow in past times, we know it is not, therefore three weeks after swarming every hive should be searched, and none considered safe that have not worker-brood.

When a super is nearly completed do not raise it and put an empty one under it, but set the empty one above until the lower one is completed: and then the latter may be removed, especially if the upper one is occupied by the bees. By the Stewarton system the pile is continually increased upwards, and none removed till the end of the season.

During this month the honey season usually terminates, except in the heather districts, therefore supers should be watched to see when bees begin to carry down the honey from the unsealed cells. When they do so we prefer to allow them to finish the work in preference to taking the super off with unsealed honey in the

cells which will not keep; the bees will not disturb the sealed portion of the comb.

Remember, if the honey harvest ceases early, breeding will cease also, except in a very small degree, and it will therefore be wise to extract all the honey possible from the hives, and feed back syrup to keep up the incoming of food.

This was one of our 'happy thoughts' seven or eight years ago, and it is now accepted as a wise one; for it is recognised as a fact that old bees will not winter well, and that young ones may be secured for that purpose by keeping up the incoming of stores, which is certain to promote late breeding of bees.

If any means exist of obtaining a second harvest of honey by sending bees to the heather, or any other late source of supply, take care to extract all the honey possible from the hives before sending them; doing so will lighten them and make them safer for travelling, and the queen will have ample opportunity for indulging her propensity for laying eggs, a consummation devoutly to be wished by every bee-keeper in late autumn.

It is well to remember that extracted honey is worth at least 1*s.* per lb. retail, and if very choice will realise more. Sugar syrup costs less than 3*d.* per pound, and we want it to be understood that bees will winter as well on pure syrup as on honey, and therefore we recommend that the extractor be freely used to secure the difference in value, and the certainty that by feeding back the syrup, breeding will be promoted.

THE HONEY EXTRACTOR.

The honey extractor is undoubtedly the greatest invention of the age in aid of bee-culture, as it enables the bee-keeper to double the honey produce of his bees. The bar-frame principle of hives brought the mysteries of the hive to light, gave facilities for management, and enabled the apiarist to rob his bees of their honey without destroying them or materially injuring their home and prospects, but it did not enable them to store an ounce more than they could or would do, in an ordinary skep or box-hive. The ingathering of honey depends entirely on the nature of the locality, and the seasons, and is governed as to the respective quantities per hive, by their relative strength in populations. It is not in the power of man to cause honey to be secreted in the fields and orchards, nor can bees *make* it, as many people absurdly suppose; they can only gather it when, by the fortuitous combination of circumstances, it is secreted in the nectaries of flowers and blossoms, and then they store it away in the receptacles most convenient to themselves. Beginners in bee-keeping often vex themselves and scold their bees because the latter will not take possession of the handsome supers they have provided for them '*to make honey in.*' They put them on by rule on a certain date, and without considering that in weather such as prevailed during the early part of June, the bees were in positive danger of starvation through their inability to obtain more than a bare sufficiency for their livelihood; they expect them to take possession of them, build comb, and store honey.

As a matter of course, when it is explained that bees do not make honey, and that they can only collect it when it is naturally secreted, that it is not secreted in cold dull weather, and that if it were, the bees could not get abroad to gather it, the facts of the case are readily comprehended and the first lesson in bee-culture learned. As a rule the honey season in England is too short to permit of delay in preparation after it commences, and, therefore, unless stocks be kept strong by cultivation, it is found that, however good the yield for the time being, stocks that are *not* strong gather no surplus, and thus is learned lesson number two. Another lesson has to be learned, and that is as to the value of combs as built by the bees, and in this respect it has been ascertained that for every pound of honey stored in new comb, a full pound has already been used in secreting the wax with which the new comb was built, or, in other words, every pound of comb-honey represents two pounds of honey as collected by the bees.

Now the Extractor enables the bee-keeper to prevent the extraordinary loss that is brought about by the bees having to build new comb in which to store their surplus; and where honey-getting is the object, the result will positively be doubled by its use. If two stocks of bees similar in all respects be set side by side, for every 10lbs. of honey stored by one in new comb in supers, 20lbs. at least could be obtained from the other by the aid of the Extractor, and the latter would be stronger in bees, and therefore better for wintering in the autumn. Seeing then that the season is short, that bees must be strong to collect a surplus, and that it is highly wasteful to allow them to use their honey to build combs, when it can be avoided, we venture to urge the use of the Extractor amongst all those who want honey for sale or home consumption.

One excellent method of procedure is, having two strong stocks, to extract the honey from the combs of both, and then to fill one of the hives with full brood combs, and put the partially empty and all the drone combs in a second box, and place it on the top of the first, leaving the bees of the second to act as a swarm

and build a new home for themselves. The doubled stock will thus have all the brood of both, and in a few days will be very largely augmented in numbers so as to be able to bring home a large surplus; and having no comb to build all hands can go to work at ingathering, and the upper set of combs, in a good time, will require to be relieved of their contents every other day at the least. Of course, if two full stocks can be united, the bees of both, and the brood of both augmenting them, the result will be far greater; but many bee-keepers do not care to double their stocks in that way, because at the end of the season they are only left as strong as one queen can make them.

The outcome of the method first named will probably be over 200lbs. of pure nectar from the doubled stock, and a spare set of combs in frames; while the second stock or swarm being a very large one, will have certainly established itself, and may also yield a large surplus.

When bees appear lazy and will not take to supers, it is often because their hive is full to repletion, in which case the Extractor will relieve the combs, the queen will be set to work, and all will go merrily again.

It may be argued that comb-foundation so largely aids the bees in forming new comb, that the waste is not near as great as formerly; but the Extractor does away with the expense of both supers and comb foundation too; and where honey simply is the object sought, it is in our estimation invaluable.

SUPERS.

As it is tolerably well known amongst our readers, we have strongly advocated sectional supers for all purposes where supers are required, because of the comfort and convenience attending their production and removal, their cheapness to purchase, and their saleability when completed by the bees. We foresaw, when we devised them, that if provision were made for securing the building of straight combs, that a pack of sections from different hives might be put together, and passed off as *one super*, which was actually done (by general understanding and agreement) at Dundee, three years ago, where, for the first time, we saw the glass-separated combs so beautifully true, and became enraptured. There, there were a number of sections, all alike, and the only question was, who could produce most of them to form a grand super (?). Seeing that such method of producing honey was the best, as it was the most saleable, we devised the 'Alexandra Super,' which can be made of any size with any number of sections, all divisible with a pen-knife; yet, in the first instance, all in a piece, so that the English meaning of the word super might, for exhibition purposes, be retained, and having regard to the prizes offered by the British Bee-keepers' Association at the coming show in August, we are glad that such a super is in existence. In Class 12, a prize is offered for the best super of honey, in wood or straw, or of either or both in combination with glass; and at a glance it will be seen that separate sections cannot be used, for in the present day such is the art of man, the bees can be forced to build a lot all alike, so that when put together, even the best judges might be deceived, and we therefore opine that separate sections are inadmissible at the competition.

In such cases it appears to us to be a mistake to offer prizes for single supers, which, except they be of the kind above mentioned, cannot be in saleable form, and must therefore be simply monstrosities,—*à la* Manchester, or worse.

In addition, we find that glass supers, in which weight and quality will be considered, are to be encouraged by prizes amounting to 6*l*. 10*s*., which we think a mistake, as glass supers are not acceptable to the bees, are not saleable, and the desire for their completion, when too large for the season, is a great temptation to culpable feeding.

THE PARIS EXHIBITION, 1878.—APIARIAN EXHIBITS.

In accordance with the intention expressed on page 24 of the *Journal* for June, we embraced the earliest opportunity for visiting the great national exhibition in the French capital, for the express purpose of recording our views of Continental apiculture as there set forth, and of informing our readers of anything that appeared interesting or profitable. Our railway ride was a charming one, though somewhat prolonged, and gave a most pleasant insight to the condition of the country through the two hundred miles of its course. Looking at the scene in an ordinary sense the aspect was delightful, the fertility of the soil being the most striking feature, for everywhere there were signs of good and abundant crops, and the whole of the panorama as it moved past us (?) delighted the eye with its beauty of scenery and colour. From a bee-keeping point of view we were in ecstasies with the delightful fact that the interval between the fruit and white clover blossoms, so much deplored in England, is perfectly filled out by the wild flowering charlie and cornbottle, which grow like weeds amongst other crops, and yield abundance of purest honey. The weed charlie passes by several names, to wit—burloch, wild mustard, wild rape, &c.; and in England it is carefully destroyed by hand-picking before it seeds,

But in France it appears to have overrun the country, and may be found almost everywhere except in old pastures. Vast tracts are covered with its pale golden glory, and no attempt appears to be made to destroy it, so that it, with the beautiful purple cornflower which grows abundantly and unchecked in corn-fields, offers advantages to French bee-keepers, which are denied to our own countrymen, except in isolated instances, where the weeding is neglected, such being the exception rather than the rule with our careful English farmers. The state of apiculture in France will, however, best be shown by an extract from the official catalogue of the exhibits, issued by the Commissioners, and which runs as follows:—

'It is only during the last quarter of a century that apiculture has made any sensible progress in France. The fabrication of beet-root sugar, which depreciated the value of honey, has done much to open the eyes of bee-keepers to their own interests, and to the necessity of adopting improved methods of apiculture to enable them to keep pace with the necessities of the times. This movement in advance, however, is not confined to France, but is general in Europe, and there are now more than thirty Bee Journals published in Germany, France, England, Poland and Italy, which are devoted to the promulgation of more or less improved methods of bee-keeping.

'The production of honey in France twenty-five years ago had fallen as low as thirteen or fourteen millions of francs worth (550,000*l.*), and she imported honey to the extent of five or six millions (250,000*l.*). But during the last twelve years the production has risen to twenty-two or twenty-three millions of francs (nearly a million of pounds sterling), and though wax is still imported in a crude state, and exported again largely, after having been worked up, France now exports a considerable amount of honey to foreign countries; of these may be mentioned the fine honeys of Gâtenais, which are not to be surpassed, and the Brittany honey which is so celebrated for the manufacture of ginger-bread.

'The number of hives at work in France at the present time is from two to two and a half millions, and though the bee-farms have diminished in size, they have augmented largely in number, especially in the departments where improved systems are most followed. As a general rule the number of hives increases by a quarter or even a third in good years, but diminishes as much in bad years. A quarter of a century ago bee-farms with from 1000 to 1500 hives were not uncommon; it is now unusual to meet with more than 400 or 500. This is probably owing to the increased price of both bees and hives, and because the price of labour has so much increased, and a large bee-farm cannot be carried on without it: and it may be accepted as an axiom in bee-keeping, as in everything else, that care and attention are necessary to obtain improved results. The price of good hives, which was formerly twelve or fourteen francs, has now risen to at least eighteen or twenty francs; but, on the other hand, the actual produce of honey, which formerly might have been estimated at thirty pounds per hive, has risen to forty or fifty pounds per hive. The price of hives has risen, probably partly because more honey is obtained, and partly because there is a greater demand for hives.

'Nothing has tended more to promote the improvement of bee-keeping than the increase of railway accommodation, which facilitates the easy transport of bees. Nothing has done more for it than the introduction of foreign bee blood, and the improvement of the races by crossing those of France with other more active races of bees, especially in districts where they had degenerated by in-and-in breeding. The power of transporting hives to good feeding grounds has also greatly extended.

'Among the bees of foreign races, the Ligurians, the Italian or yellow bee of the Alps, the bees of Cyprus, and the Carniolian Bees are highly esteemed. The Ligurians have been propagated the most; for twenty years the trade in Italian bees has been carried on with all parts of Europe, America, and even in the Pacific. In Chili there are thousands of hives of them.

'In France the Central Society of Bee-keepers has sought to promote the introduction of the Italian and Carniolian bee. Thanks to the easy way in which fertilized queens can be sent about the country, and the certainty with which they can be introduced into hives, these races, especially the former, have been very lately introduced into all the most important bee-keeping localities in France. The Society also strongly recommends the practice of crosses with any foreign races, or with hives taken from any distant locality, so as to obviate the deterioration of race by in-and-in breeding.'

It will perhaps be as well to state here, that French apiculture is far behind the age, in consequence of the pertinacity with which the people adhere to the principles handed down from father to son through so many generations, and hence the straw skep and fixism predominate. We were fortunate in obtaining an introduction to M. Hamet, the celebrated editor of the chief Bee Journal of France, an enthusiast who would soar beyond the realms of bee lore as at present known, and lead France to a higher state of knowledge; but there, as here, the people are filled with superstitious notions about bees, and wedded to the usages of their forefathers; and M. Hamet finds these difficulties almost insurmountable. Nevertheless, he is pleased to think he is progressing, and establishing a school of thought, which must lead to continual experiment, and good practical results.

Columella, in his book *of Husbandry*, says 'bee-hives must be fabricated according to the condition and circumstances of the country,' giving instances that where the cork-tree abounds, its bark will doubtless be used; in other places, willows will be woven, and elsewhere adobe, *i.e.* mud and chopped straw, will find admirers, so that the materials of which hives have hitherto been formed, depend in a considerable degree on the resources of each particular country. Straw has been the cheapest material in Europe for many years, and straw hives have in consequence prevailed; but now-a-days straw has become one of the most valuable of agricultural products, and it is a question whether or not in a few years the peasants of both England and the European Continent will not be driven by force of circumstances, to wit, the omnipotence of costliness, to seek some other material for hive construction, and then what will the skep-ites say? M. Hamet finds his difficulty in inducing a change in the character of hives, in the fact that with straw

skeps the peasantry 'do well;' they reap a harvest every year, as well they might, when the very weeds (before mentioned) fill their hives to profusion at a time when in England the bees are comparatively starving; and he says of France, as we have too thoroughly experienced here, that under such circumstances the peasants are difficult to move, and he therefore devotes considerable time and attention to making the best of things as they are. The state of affairs reminds one of the story of a fellow in good health, who having read a quack pamphlet, was induced thereby to take some of the vaunted medicine it recommended, and the consequence was he died. His grave-stone, it is said, now bears this inscription: 'I was well, and wanted to be better; I took physic, and here I am!' And really it would appear that the majority of bee-keepers have heard the story, and have resolved not to do better, but to be content to let *well* alone.

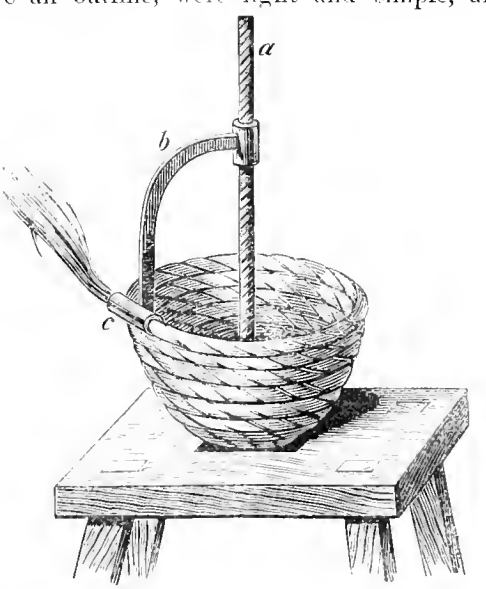
This being the case, our readers will not be greatly surprised if we confess to considerable disappointment with the whole character of the apiarian exhibits, as far as Continental Europe is concerned. The old platitude which occasionally admits that they do (certain) things better in France, will not hold good as regards bee-keeping, and we regret that beyond this fact we learned so little by our visit.

The exhibits were, by some singular want of arrangement,—which we greatly deplore, inasmuch as it shows that bee-keeping is not recognised as a distinct branch of agriculture and worthy of a separate section in the Exhibition—greatly scattered, and we had considerable difficulty, even with the kind and courteous assistance of one of the Government staff, in ascertaining their existence, except in the English courts and the Chalet devoted to insects and their produce. Court after court were traversed in the hope that something of special interest might be found; and from rumours that had penetrated to the sanctum of the honoured M. Hamet we had reason to expect that in the Japanese courts a great surprise awaited us in the fact (?) that bar-frame hives, excelling all that Europeans had dreamed of, were on view; but after much wearisome hunting we ascertained that nothing of the kind existed either in the Japanese courts or in Japan itself; and we cannot help recording the sense of relief, if we may use the term, which we felt when it was satisfactorily proved that English ideas of apicultural necessaries had not been forestalled by that wonderful people.

American exhibits, to use a well-worn phrase, were conspicuous by their absence,—a fact we much regret, as we had hoped that after the fiasco at Philadelphia, where England was 'to the fore' and our Yankee friends nowhere, they would at least have put in an appearance, and given us an opportunity of quizzing their productions for the benefit of 'the craft' in this hemisphere. Germany was in a similar category, none of the treasures which she as a great bee-keeping country has perfected being on view. Switzerland was not represented, nor Austria or Denmark, or, in fact, any bee-keeping country in Europe, save France, Italy, Russia, and England; or if any others were at this world's fair we were not able to discover their exhibits, and must beg pardon for being unable to record an opinion concerning them.

France being the hostess on the occasion, offering welcome to the world, is undoubtedly entitled to the first notice, although, as will be gathered from what has been already written, we by no means consider her first in the onward march of improvement. Her chief exhibitors are M. Hamet and the Société d'Apiculture de l'Aube, having their stands in the 'Chalet,' a separate wooden building in the Swiss style devoted to the exhibition of the mode of cultivating insects for profit, &c. It is situated to the right after passing the bridge over the Seine, leading to the grand new building of the Trocadero.

The first things that attracted attention in M. Hamet's exhibits were the machines for aiding in the manufacture of straw skeps; they were of various shapes—light and heavy—but all were on the same principle; and these to our mind indicated more than anything else the nature and state of the hive business and the chief mode of cultivating the bee in France. Some of the machines were extremely clumsy in their appearance; others, of one of which we give an outline, were light and simple, and



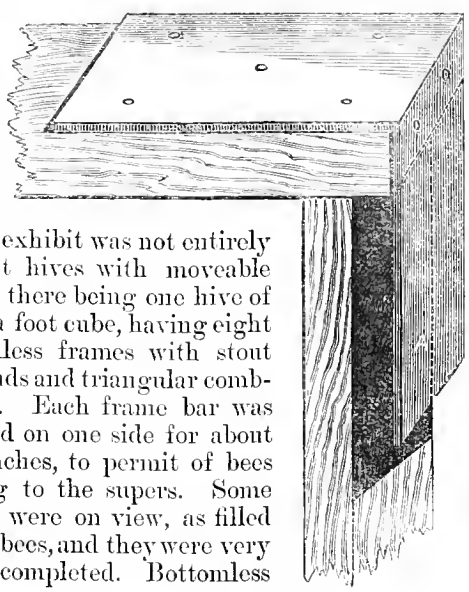
easily understandable. The screw *a* passes through the table, and by a flange holds down

the commencement of the skep, which is begun by hand; *b* is an iron cramp turning on the screw *a*, and forming a gauge by which the walls of the hive are kept at equal distance from the centre, and according to its (the gauge's) shape are formed perpendicular or otherwise.

The straw, of various lengths, is placed in a tin tube of about four inches in length, as shown at *c*; and as the work proceeds other straws, to keep it filled, are thrust into the open end of the tube which slides along them, leaving a nice round rope clean and straight for the operator to sew to the parts already formed. We did not see the actual manufacture of skeps, but should think it was the work of two people—one to keep the tube filled with straw, and the other to do the sewing.

The next article that enlisted our attention was a 'driving apparatus.' It was formed of a framework from which two forks projected, one for the lower inverted hive to rest upon, the other to grasp the top hive and hold it in position above the inverted one. It was evident that close driving was contemplated by the inventor, and doubtless the purpose was the 'taking up' of stocks in autumn, to obtain the honey without destroying the bees, a laudable object, and a great improvement on the old smothering principle; but to our mind the machine requires simplifying before it will be brought into general use.

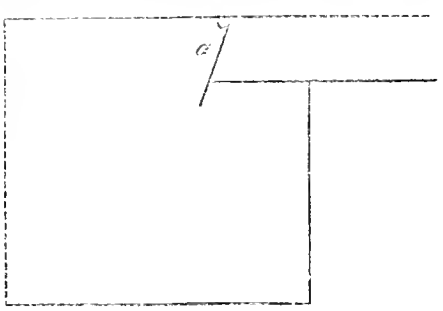
The chief feature in it is that, by a combination of straps, sliding levers, and iron forks, two skeps can be firmly held together while close driving is performed, a matter which can be equally well performed if the full skep be inverted on a small tub, and the whole secured by straps or cords fastened to the said tub.



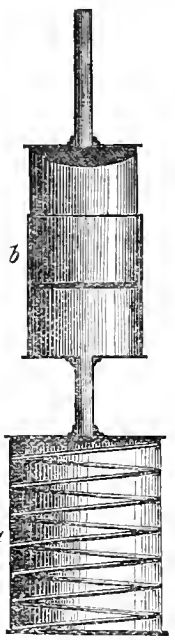
The exhibit was not entirely without hives with moveable combs, there being one hive of about a foot cube, having eight bottomless frames with stout wire ends and triangular comb-guides. Each frame bar was grooved on one side for about four inches, to permit of bees passing to the supers. Some frames were on view, as filled by the bees, and they were very nearly completed. Bottomless frames we believe to be the correct thing, but the public will not yet believe in them; but iron ends in the coldest parts of the hive would appear to be too likely to cause condensation and mouldiness, and we would therefore avoid them.

A hive, about the same size, called the Besthorn hive, had a peculiar arrangement of frames (bottomless as before), the ends being fitted with angle irons, extending about 2½ ins. each way, as shown in engraving in previous column. In the front and back of the hive grooves were cut to receive the iron ends *a*, such grooves being covered by stout zinc, nearly three inches wide, nailed over them, and so arranged that the iron slid behind while the wood rested upon it (the zinc). The quilt was not in use. Here, again, the presence of metal in the coldest parts of the hive would appear objectionable, as on so large a surface as the zinc presented, viz., seventy-two square inches, condensation would go on rapidly, and in cold weather the floor-board would be very wet. Such mistakes in hive-building militate greatly against the general adoption of the bar-frame principle, as from the evils that are sure to arise they receive condemnation at the outset, and a ban is laid upon them that it will take years to remove.

We were very glad to see that sectional supers are in use in France, and that they are effectually guarded by the oblong queen-and-drone excluding zinc or iron, similar to that which we have of late introduced here. The method there adopted is to enclose three top bars with glass on three of their sides, and queen-excluding zinc on the fourth; a slotted adapting board is placed upon the hive, and the sections arranged upon it so that bees passing up find themselves between the rows of sections, into either of which they can enter through the queen-excluder, which presents a perpendicular face on either side of the slots. There was no honey extractor among M. Hamet's exhibits; but a honey knife, such as is used for uncapping cells suggested that the use of the 'slinger' is not far hence. There is a good drone-trap amongst M. Hamet's exhibits, the invention of one Frère Alderic, of Charroir par Chassy, à Morvand Nievre; it has somewhat the appearance of



Aston's, but is more simple, and we present a sketch of it in perpendicular section, as fitted to front of hive. It is a box, with drone-excluding front; and the part that covers the sunk entrance in the floor-board, or fits when so arranged over the entrance when cut out of the hive itself, is also of that material, so that worker bees can get in and out most readily, under all conditions; but drones can only get from the hive by passing through the fall-trap *a*, which is composed of wire, when they find themselves in a cage from which there is no possibility of escape. With a little improvement we hope to make this trap perfect. There are several fumigators, the most simple of which we illustrate. *a* is a kind of accordion, with tin ends; its body is of leather, fitted round a spiral spring, the fire is put into *b*, and *a* being taken between the fingers and thumb, is worked by the alternating pressure of the thumb against its back. The fire is prevented from passing through the tube into the hive by a kind of tin comb, which screens the orifice in *b*.



M. Hamet has also a head-gear, or helmet, for protecting the operator against the stings of the bees. It is of oval shape to fit the face with a peak on each side (in shape like that of a boy's cap) for protecting the ears, and a wire strap that goes over the head and fits into the nape of the neck. The whole is formed of a wire framework, covered on one side with fine fly-proof steel wire gauze, and the other is fitted to a holland bag, which is perfectly sting-proof. The bag is dropped over the head, and the face thrust into the wire case, when the operator appears as if looking out of the end of a bag through a wire cover such as is used in a larder to prevent the access of flies to meat. They ensure perfect safety, but apparently are too hot to wear with comfort.

In M. Hamet's exhibits there is a large library of bee books, a great number of straw caps (supers of last year) of beautiful appearance, well filled with translucent honey and neatly sealed; there are specimens innumerable of wax of all shades and shapes, specimens of run honey from 'everywhere,' (?) wax candles, and tapers in wax by the hundred yards in a piece, both of the latter being pure white and fit to be burned in the churches and chapels, as is apparently usual in France in those places of worship. We have said that honey from 'everywhere' was exhibited, but to our surprise there was not one specimen purporting to come from NARBONNE, the supposed great centre whence alone pure honey can be obtained. Oh! miserable delusion; alas! wretched Cockneyism, that, satisfied with a name, will swallow the shadow and believe in the substance. A rose by any other name would smell as sweet, but that only shows that the olfactories are not liable to be cheated, but in the matter of taste gustatory, especially in regard to honey, how numerous and willing are the dupes! The best authorities in Paris declare that the honey from Narbonne has no real place in the market; that the method of bee-keeping pursued is so primitive that pure honey cannot there be obtained, but that like the filth described some time since by the 'Renfrewshire Bee-keeper,' the 'result' is obtained by the compression of all the contents of the hive after the bees have been smothered, and is the conglomerated express of all the honey, brood, pollen and exuviæ, which may be in the hive when the 'expression' takes place. We had, by the particular desire of English friends, determined to visit this seat of 'honeyed excellence;' but on inquiry we found that it was, to and fro, about a thousand miles journey, that only skeps were kept on the smothering principle, that they were crushed up *à la* Pettigrew, and that to an expert the game was not worth the candle.

There were amongst M. Hamet's exhibits several storifying hives filled with comb, somewhat on the principle of the Carr Stewarton hive, so well known in this country, but having had no guides fixed to the frames the combs were of the crookedest.

The use of comb foundation was apparently unknown in France until the present time, but having given the addresses of manufacturers it will doubtless soon be introduced. It was singular that during our interview with M. Hamet, a French lady called upon him to inquire where comb foundation, such as she had seen in our exhibit, could be obtained, and we had the pleasure of referring her to a well-known maker at Dundee.

The Société d'Apiculture de l'Aube followed in the wake of M. Hamet, and exhibited a large quantity of straw skeps of all shapes and sizes, but there was nothing in them worthy of special notice. Honey and wax in innumerable samples, the latter moulded into all sorts of fancy designs; but there was nothing to indicate advancement in hives beyond a few small nucleus hives with frames hanging on zinc runners, and these, having been used, were in a terrible mess with propolis and dirt. There were some pretty little single sections of honey in comb by M. Achille Fournier; they mea-

sured 4½ inches by 3 internally, and were beautifully sealed and finished throughout; and M. Fournier had also some hives, with frames which were without projecting ears to hang by, but in lieu thereof a nail was driven into each end of the top bars of the frames and left sticking out about an inch, and these resting in small notches on the zinc runner at the front and back of the hive, kept the upper parts of the frames in their places, while to prevent rocking below each frame had to be dropped between two wire pins at either end of the hive. A much better method of obtaining comparative rigidity to the lower parts of frames was exhibited by some one whose name we could not ascertain; it consisted of a series of inverted V's, one leg of which was rigid while the other acted as a spring, so that when a frame was let down between two of them the spring of one V kept the bottom rail close to the rigid side of the other, and thus perfect uprightness and steadiness were secured.

In the Chalet there is one hive of extraordinary character from Russia; it is called a rotative hive; it is circular, of wood, about a yard across and 14 inches high, and its frames are fitted after the pattern of a radiating star. There are eight long frames which fit against the central spindle and radiate equally, then there are eight shorter ones which go as near to the central spindle as it is possible for them to do; there are sixteen still shorter that go in between, and thirty-two tiny frames that have only just room to hang between the outer ends of the others. All of them hang to a false circular top within the hive which is attached to the spindle, which latter having a knob at the top on the outside, enables the owner to turn the frames round and bring them to a window on the side of the hive when they may be viewed seriatim. The principle involved is that the bees will commence building on the centre of the hive, that they will use the frames correctly, and store their honey all around them in the small frames, to be taken away at the pleasure of the owner. What the inventor knows of bees, or whether he has a special kind on hand to put into his 'monstrosity,' we are unable to fathom; but we should like to see it in operation, and him manipulating. We fancy if there are any bad words in the Russian vocabulary nothing but the national politeness would prevent him shocking our ears by repeating them. Russian 'good words' inflict sufficient torture on the ear, what bad ones are like we do not wish to know.

There are as usual a number of wasps' and hornets' nests on view, though why they should be mixed up with bee exhibits we are at a loss to imagine; certainly wasps and hornets are enemies to bees, inasmuch as they rob and destroy them whenever possible, but on these grounds an exhibition of toads would be admissible.

Along the front of the Chalet (inside) were ranged numerous stocks of bees at work, and the public amused themselves by looking through the windows at the back of the hives, to their great edification, doubtless. One box hive without frames gave opportunity for viewing a strong swarm at work; they had built as much comb as they could cover, and the young bees not having begun to hatch the numbers were dwindling, and the edges of the combs showed through the clustering bees. Presently the hatching brood will increase the population, and when honey is abundant they will commence to store around their present nest, shutting themselves in with a casing of sealed honey and preventing the further deposit of eggs, and afterwards, as long as the honey yield lasts, they will build drone comb almost exclusively. Such a hive is interesting to those who understand it, but to the uninitiated bees in a hive are always supposed to be '*making honey*.' There was nothing special in the way of observatory hives, except an absurdly large one sent by the Abbé Sagot; it was a four-rayed one, each ray holding three large frames of comb; but as usual the bees had dwindled, and there were barely sufficient to furnish one ray, and almost the whole of the brood was in *one* of the *frames*.

This huge affair revolved on its centre like a roundabout, and occupied a box nearly three feet in diameter and four feet high.

M. Sartori, of Milan, had a skep on view, which appeared to have been set on a bunch of whitethorn, and of which the bees had taken possession and built considerably. The skep was on the top, and the bush or fagot, fully three feet long, with comb built amongst its branches, was enclosed in a glass case, with an opening at the bottom; but the poor bees appeared to have felt lost in such a place, and did not readily take to the entrance, but beat themselves to death against the glass, until nearly all had perished.

There were some Giotto frame hives, each frame forming a portion of the hive walls, and the whole held together by long screw bolts. They are miserable hives in work—dreadful crushers of bees, and repositories of propolis—yet the owner, who was explaining their nature, was evidently delighted with them.

A huge press, some six feet high, four feet long, and one and a half feet wide, was on view, as a means of 'expressing' honey and wax. It was fitted with gearing that gave power enough to squeeze the blood out of a stone; and doubtless honey expressed from old

combs would at least be highly flavoured. There was abundance of sweetmeats, pastilles, and bonbons, in which honey was a component. They looked rich and pretty, but we could not taste them. On one of the stands was a moveable comb-hive, by the Baron Albert Frederic de Dietrich; it contained fifteen frames, each about ten inches square, and had a wooden grating as a drone-and-queen excluder, a provision that would be fatal to its success, as its liability to expansion and contraction would nullify its operation. The Chalet contained many exhibits of most interesting character connected with silkworms, moths, and other insects. But our province is with bees, and we think we have run through most of the objects of interest connected with their cultivation; and it now remains to visit the 'courts' containing bee exhibits, and then bring our notice to a close.

Chief amongst the Continental courts outside France stands the imposing exhibit of M. Sartori of Milan, Italy. It, like those already described, consisted largely of the products of the bee and the various articles manufactured therefrom. Innumerable specimens of honey, wax, mead or metheglin, hydromel, &c., but nothing showing improvement on the exhibits sent by M. Sartori to the English International at South Kensington in 1872, a fact that was somewhat surprising, considering the marked improvements that have taken place in other countries where the bar-frame hive is freely used; and taking into account that Italy and Switzerland are the countries where to the bar-frame principle is due the great industry that has arisen, viz., the cultivation and breeding of Ligurian queens, almost impossible without it (bar-frame), we think Italy has indecorously accepted finality and avowed satisfaction with what is, in regard to hives from our standpoint, miserably crude, and lacking in convenience of arrangement. The best Italian hive is in the form of a pedestal about three feet high; it opens at the back, one door exposing the whole arrangement, which may be viewed through glass shutters that confine the bees to the combs.

The frames run across the entrance, and those immediately in front, intended to constitute the breeding apartment, are of double the height of those to the rear, and this single-storey front and two-storey back are surmounted by two other storeys, taking frames of the same size as those at the back of the lowest, or breeding apartment. There may be conveniences in this arrangement, but we never can sanction any style of bee architecture that involves the necessity of strewing the ground with fourteen or fifteen frames of comb from a hive, because the sixteenth is the one which is required for examination. In bee *culture* it is often necessary to examine the whole of the combs in a hive, and in regard to back or side-opening hives, the inventors or designers should tell the public what is to be done with the first eleven frames, whilst the twelfth is being sought and looked over. The Italian hive, extractor, nucleus, and general furniture, are at a standstill: perhaps, like the French, the Italian peasantry have no desire to be better, being already well.

Excepting the English exhibits, only one other—that we could discover—needs notice, and that is a Russian exhibit of two hives, on the storifying principle, composed of hard wood, an inch and a half in thickness, which is about the only difference between them and the discarded Woodbury hives of England. There was nothing whatever about them of interest to English bee-keepers, and so we pass them, and at last turn to the British Court, where are two exhibitors—Messrs. Abbott Brothers, of Southall, and Messrs. Neighbour and Sons, of London.

The exhibit of Messrs. Neighbour and Sons is a large one, and consists of a large number of straw skeps of various patterns and duplicate specimens of almost every article enumerated in their catalogue. Their most advanced hives are their 'Philadelphia,' their 'Straw bar-frames,' the 'Lanarkshire,' and the 'Stewartons,' and their 'Improved Cottage Hive,' working three bell-glasses, so well known in England. They have two of Abbott's pattern single-comb observatories, one very bad imitation of Abbott's Little Wonder-extractor, an Aston's drone-trap, a Cheshire transfer rack, a Bingham bellows, a pair of honey-cutters, a new can feeder, a pair of gloves, sundry bell-glass supers, a Cowan extractor, a new hive-cover, Abbott's hexagon stage feeder, a Neighbour feeder, specimens of honey, comb foundation, queen-cages, puff-ball, &c. &c., the whole nicely arranged and well kept. The stall is close to Colman's Mustard Mills, so will be easy to discover should any English visitor feel curious in regard to it.

Abbot Bros'. stand is a few yards to the right when facing Messrs Neighbour's, and consists of one Abbott's Standard hive, one Abbott's Cottage Woodbury, one Abbott's Makeshift Standard, one Abbott's cheap stand, one Abbott's new Unicomb, one Abbott's single-comb observatory, one Abbott's Little Wonder extractor, one Abbott's Alexandra super, one Abbott's original sections, one Abbott's new idea frame, one Abbott's hexagon stage, one Abbott's bottle and shovel, one Abbott's gauge, one Abbott's wax-smelter, one Abbott's scraper, one Abbott's queen-cage, one Abbott's honey-knife, one Abbott's bee-veil, one pair india-rubber gloves, one Aston's bee-trap, and one

specimen of John Long's original comb-foundation, the most perfect imitation of natural foundation ever made. At the back of their stand there has been placed the observatory hive of Brice Wilson, Esq., considerably altered and improved from its original form. It consists of a set of frames, each enclosed in glass, which revolve on a central stem, which latter affords ingress to each frame; and when the whole is shut together as a book, means are provided by which queen and bees traverse the whole. It is highly ingenious, and is said to be effective as an observatory hive in which bees can be wintered.

And now our task is done. We have not spared foreign exhibits in our criticism, because as a rule they are below mediocrity, and savour little of a desire to improve; but being interested in the British exhibits, which are the foremost of the age beyond the shadow of a doubt, we tread gently, fearing lest we might be misconstrued. The prizes, as we understand, are to be awarded for improvements in the method of *cultivating* bees, and if it be so they should certainly come to England; for outside her exhibits there is scarcely a thing that is not old and abandoned in England, or new and absurd. Ere this appears in print, the awards will, doubtless, have been made; and unless the judges (or jurors) are well up in practical apiculture we fear that the huge exhibits of *bee-produce* may be taken into account, and weighed against *improved means of production*, in which case serious mischief will arise, as the whole bee-keeping world may be led into error. If a prize were offered for the production of the best pump, it would be rather absurd to give it to the man who had the largest natural fountain; yet such things occasionally happen in this wonderful world.

And now, before we close, we think a word of warning to intending travellers may not be out of place. First, then, as to the trip to Paris and back: cheap routes are advertised under headings that make it appear that in about ten hours a passenger is whisked from London to Paris, and this in some respects is true; but third-class passengers by the London, Chatham, and Dover night service find themselves at Calais at about eleven o'clock, with no means of proceeding until half-past seven o'clock the next morning, as there are no third-class carriages attached to the express which leaves Calais at half-past eleven or thereabouts. This is a trap that either entails additional expense for travelling or hotel charges, or compels the passenger to stay in the waiting-room for about eight hours, and then to take a nine-hours' ride in a wretched carriage that stops at almost every station on the route, making it nearly a twenty-four hours' journey. Comparison of notes with others who have made the trip leads to the conclusion that the best course is by Newhaven and Dieppe, the second-class fare for which is little more than the third *viâ* Dover and Calais, and the journey is only of about twelve hours' duration. Those who do not fear the water will find great comfort by the passage from London Bridge direct to Boulogne, with the great advantage on returning of landing in London. On our return we landed at Folkestone at half-past two in the morning; and the train for London did not start until half-past five. Folkestone is an hospitable place, and for travellers at that hour has provided a dilapidated drinking fountain, and no other accommodation (not even a milkman) until after six o'clock.

COMING SHOWS, 1878.

July 10, Ealing; J. Hunter, Hon. Sec.

July 17. Woodford, Essex; Mr. S. J. Taylor, Hon. Sec.

July 24, 25, 26. Ludlow (Burrington); Rev. J. G. Corser, Acting Hon. Sec.

July 30, 31, and Aug. 1 and 2. Caledonian Apiarian Society, Dumfries; Mr. R. J. Bennett, Sec., 50 Gordon Street, Glasgow.

Aug. 6, 7, 8. British Bee-keepers' Association, Royal Horticultural Society's Gardens, South Kensington; Hon. Sec., Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead.

Aug. 13. Lincolnshire Bee-keepers' Association, at Stamford; Mr. R. R. Godfrey, Hon. Sec., Grantham.

Aug. 14, 15. Shropshire; Rev. the Hon. C. P. Fielding, Hon. Sec.

Aug. 21. Westbury-on-Trym; Mr. J. B. C. Burroughs, Hon. Sec., Westbury-on-Trym.

Aug. 22. Dorset County Bee-keepers' Association Show at Dorchester; Hon. Sec., Mr. Charles E. Norton, Shaftesbury.

Aug. 23. Devon and Exeter Association Show; Mr. W. N. Griffin, Rock House, Alphington, Exeter, Hon. Sec.

Aug. 30, 31. Arbroath, Mr. William Raitt, Hon. Sec., Liff by Dundee.

Aug. 30, 31. Blairgowrie District Bee-keepers' Society, Town Hall, Blairgowrie; Mr. James Rogerson, Sec., Blairgowrie.

Sept. 5. Campden; Rev. R. F. Watson, Chipping Campden, Gloucestershire, Hon. Sec.

Sept. 5, 6, 7. East of Scotland; Mr. William Raitt, Hon. Sec., Liff by Dundee.

Sept. 12. Caledonian Apiarian and Entomological Society, Glasgow; Mr. R. J. Bennett, Sec., Glasgow.

Sept. 14. Stirling, at Corn Exchange; Mr. W. J. Clarke, 4 King Street, Stirling, Hon. Sec.

Banchory, Inchmarlo, about the middle of

September. (Further particulars in next number.)

Sept. 24. Moreton-in-Marsh; Rev. J. W. Clarke, Hon. Sec., Moreton-in-Marsh.

Secretaries of coming Shows will greatly oblige by forwarding lists of fixtures. They will be inserted in this column without charge.

THE BRITISH BEE-KEEPERS' ASSOCIATION.

A committee meeting was held at 15 Beaufort Buildings, Strand, on Monday, June 10th: present, Messrs. Cowan, Hunter, Hooker, Godfrey, Minson, Stewart, and the Rev. H. R. Peel, Hon. Secretary.

Mr. Cowan was voted to the chair.

This meeting was of considerable length, the committee sitting for nearly five hours. The principal business transacted was the arranging of the Schedule of Prizes for the forthcoming show at the Royal Horticultural Gardens, South Kensington, to be held on August 6, 7, and 8.

Orders were given for the purchasing of a tent for manipulation purposes at local shows. This tent will have an enclosure of 20 feet in diameter for the manipulator to work in, with a covered way of 6 feet in breadth for spectators, and will be used for the first time at the Ealing Show on July 10th.

The following announcement has been issued:—

The Association will hold their fourth great exhibition of bees, and their produce, hives, and bee furniture, and honey fair, at the Royal Horticultural Society's Gardens, South Kensington, in connexion with the Society's Flower Show, on August 6th, 7th, and 8th, 1878.

The following is the schedule of Prizes:—

HIVES.

All Hives to be fitted with guides ready for use.

1. For the best hive for observation purposes, all combs to be visible on both sides, to be exhibited stocked with bees and their queen.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

2. For the best moveable comb hive, to include covering and stand.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

3. For the most economical (best and cheapest) complete hive, on the moveable comb principle, for cottagers' use, including cover and floor-board.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

4. For a hive for general use, on an entirely new and approved principle ... ... Silver medal.

5. For the best straw hive for depriving purposes, cost to be taken into consideration ... ... Silver medal.

NOTE.—In Class 1, duplicate hives may be exhibited for the purpose of explanation, without any entrance-fee being charged. Each exhibitor must be prepared to guarantee that he will supply any number of similar hives at the prices affixed to his exhibits. The prizes will only be awarded on this understanding.

SUPERS.

6. For the best and cheapest supers for general use in an apiary.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

7. For the cheapest, neatest, and best supers for producing honey-comb in a saleable form.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

BEES.

8. For the best stock of Ligurian or other foreign bees.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

9. For the best stock of pure English bees.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

The bees to be exhibited living with their queen in observatory hives.

HONEY.

10. For the largest and best harvest of honey in the comb, from one stock of bees, under any system or combination of systems. The honey to be exhibited with or upon the hive that produced it (or its facsimile). To be attached thereto, a legibly written explanation of the method adopted, the locality, pasturage, dates of swarming and supering. To this may be added any particulars of his apiary which the exhibitor may be disposed to give, such as number of hives, average yield, &c. ... 60*s.*, 40*s.*, and 20*s.*

11. For the best exhibition of super honey from one apiary. ... ... 40*s.*, 20*s.*, and 10*s.*

12. For the best super of honey,—The super to be of wood, straw, or of wood in combination with glass or straw. Seven prizes: 40*s.*, 30*s.*, 20*s.*, 15*s.*, 12*s.* 6*d.*, 7*s.* 6*d.*, and 5*s.*

13. For the best glass super of honey.

40*s.*, 30*s.*, 20*s.*, 15*s.*, 12*s.* 6*d.*, 7*s.* 6*d.*, and 5*s.*

14. For the best exhibition of honey in supers, or sections of supers, separable, and each not more than 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs.

30*s.*, 20*s.*, 10*s.*, 7*s.* 6*d.*, and 5*s.*

15. For the best single section in the comb, weighing not more than 3 lbs. ... ... 1st prize, 10*s.*; 2nd prize, 5*s.*

16. For the best exhibition of run or extracted honey in glasses of 5 lbs. to 10 lbs. each. ... 20*s.*, 12*s.* 6*d.* and 7*s.* 6*d.*

In Classes 12 and 13, weight and quality will be taken into consideration.

COTTAGERS' CLASSES (No Entrance Fee).

17. For the largest and best exhibition of super honey in comb, the property of one exhibitor, and gathered by his own bees.

Special prizes given by the Rev. H. R. Peel and Mr. Jas. Lee, of Bagshot, Surrey. 1st prize, 1*l.* and hive value 17*s.*; 2nd, 10*s.* and hive value 17*s.*; 3rd, 5*s.* and certificate.

18. For the best super of honey.

40*s.*, 30*s.*, 20*s.*, 15*s.*, 10*s.*, 7*s.* 6*d.*, and 5*s.*

19. For the best exhibition of run honey in glass jars, containing 5 lbs. to 10 lbs. each.

30*s.*, 20*s.*, 15*s.*, 10*s.*, 7*s.* 6*d.*, and 5*s.*

All the honey and comb exhibited in the above classes must be *bonâ fide* the produce of 1878, and gathered in the natural way by bees in the United Kingdom.

COMESTIBLES.

20. For the best Mead or Beer made from honey, with recipe attached. 1st prize, silver medal; 2nd, bronze medal.

MISCELLANEOUS.

21. For the best and largest collection of hives, bee-furniture, bee-gear, and bee-keepers' necessaries, no two articles to be alike.

1st prize, silver medal; 2nd, bronze medal; 3rd, 10*s.*

22. For the best honey extractor.

1st prize, silver medal; 2nd, bronze medal; 3rd, certificate.

23. For the finest sample of pure bees' wax, not less than 3 lbs. in weight. ... ... 10*s.*, 7*s.* 6*d.*, and 2*s.* 6*d.*

24. For any new invention calculated, in the opinion of the judges, to advance the culture of bees.

Silver or bronze medal at the discretion of the judges.

25. For the best and most interesting collection of natural objects connected with bee-keeping.

1st prize, bronze medal; 2nd, certificate.

26. For the best microscopic slides illustrating the natural history of the honey bee.... ... ... Silver medal.

27. For the best and largest display of British Bee Flora in a dried state or otherwise, such plant or specimen must have a card attached stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers.

1st prize, silver medal and 20*s.*; 2nd, bronze medal and 10*s.* 3rd, certificate and 5*s.*

28. For the best chemical or other test for instantaneously detecting spurious from genuine honey ... Silver medal.

29. For the best and cheapest honey jars with covers and fastenings complete, to contain 1 lb. or 2 lbs. each of extracted honey ... ... 1st prize, 10*s.*; 2nd, 5*s.*

Every hive or miscellaneous apparatus substantially the same as exhibited in previous years must have it in its construction a distinct improvement to make it eligible for another prize; without such, and in case it should again be

adjudged the best of its class, a certificate only shall be given, but the fact of such former adjudications shall be stated on it.

30. A separate class will be open for the exhibition of hives and apiarian appliances at present used in other countries, as well as any utensils, obsolete or curious, which are likely to prove attractive and interesting to bee-keepers. *No entrance fee will be required in this class*, and gentlemen in a position to send such objects of interest will oblige by communicating with the Hon. Sec. as early as possible.

HONEY FAIR.

31. A distinct counter will be appropriated to the exhibition and sale of honey in comb and in glasses, and in this department sales will be permitted and goods delivered at all times during the Show. The Association will provide salesmen. All money must be paid through the hands of the clerk in attendance, and will be afterwards accounted for, less 1*d*. in each shilling for commission. Every exhibit at the sale counter must have distinctly marked on it the weight and the price, which must include the package which contains it. The Association will not undertake to break bulk.

32. Driving Competition, extending through the three days of the show.

For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, and capture and exhibit the queen.

1st prize, silver medal and 20*s*.; 2nd, bronze medal and 10*s*.; 3rd, certificate and 5*s*.

The conditions of the competition are the following, viz.:—Each competitor shall bring his own bees in the straw skep they have worked and bred in. They must be securely confined (properly ventilated) until the commencement of the competition. Each competitor may have one assistant, for the purpose of holding the hive, appliances, &c., but who shall take no part in the actual driving or search for the queen. The system of open driving shall be adopted. The receiving hive to be inclined at such an angle as shall permit the passage of the bees to be viewed by spectators. Smoking in moderation will be allowed, but no chloroform, puff-ball, or other anæsthetic. The driving shall be considered complete notwithstanding a few straggling bees may be left in the hive, but total removal should be aimed at. No combs shall be wilfully removed nor broken. The queen must be captured and confined in a glass covered cage (to be provided by the society) and handed to the judges for their inspection. Veils, but no gloves, may be worn by the competitors. Any dispute or difference of opinion shall be referred to the judges present, whose decision shall be final. After the award of prizes has been made the bees may be returned to their hives and removed or sold at their owner's pleasure. No commission will be charged on bees so sold. The competition shall commence at 2 o'clock.

No exhibit entered for competition will be allowed to be removed until the close of the show.

Every intending exhibitor must register his name with a fee of One Shilling (which shall be the entry fee for one exhibit in any class) by July 13th, any additional number of entries may be afterwards made on or before July 27th, on payment of an additional fee of one shilling each. The amount of counter space that will be required for the exhibits must also be stated.

Each exhibitor and member may have a ticket of free entry to the show, on application to the Hon. Sec. prior thereto.

Donations in aid of the Prize Fund will be thankfully received.

Registration of exhibitors closes on July 13th. Entries close July 27th, 1878. Post Office Orders to be made payable to Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead. Stamps received in payment at the rate of thirteen for 1*s*. All communications to be addressed to the Hon. Secretary, Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead; if requiring a reply a stamp must be enclosed. Further regulations for guidance of exhibitors will be sent in due course after the receipt of Registration form and fee.

CALEDONIAN APIARIAN SOCIETY.

At a committee meeting held in M'Innes' Hotel, Hutcheson Street, Glasgow, on June 5th, 1878, Mr. Wilkie was called to the chair. Letters of apology were read from Messrs. Sword, Paterson, and others. Mr. Bennett reported that he had had an interview with Mr. Menzies since the last meeting, and the conditions were so far favourable that the committee decided to draw up the programme (see advertisement) for the Dumfries show, and all bee-keepers are cordially invited to aid in making Dumfries as great a success as Edinburgh was last year. Mr. Thomson said he would give a special prize of a Lanarkshire Hive for others, not hive-makers, who exhibited any hive on the bar-frame system; as so far as he had seen nothing came up to the original Stewarton Hive with its present improvements.

The schedule of prizes to be given at the Dumfries Show will be found in the columns for advertisements.

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.

The first exhibition of bees, honey, and hives, in association with the summer show, will take place at Ealing Park, on Wednesday, July 10th.

All exhibits must be on the grounds and staged by twelve o'clock at noon. Exhibits may be priced and sold for removal after the show. One penny in each shilling commission will be charged and payable to the Society. Exhibitors are recommended, when possible, to accompany their exhibits to the show; if sent by rail, they should be forwarded in sufficient time to arrive at Ealing by Tuesday, July 9, and should be addressed—'Bee Show, Ealing, Acton, and Hanwell Horticultural Society, Ealing Park. Great Western Railway. Carriage paid.' The committee will take great care of all exhibits entrusted to their charge, but can in no case be answerable for any damage incurred either in transit or at the show.

Driving.—The British Bee-keepers' Association having kindly presented their silver and bronze medals for this competition, the prizes will be as follows, viz.:—For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, and capture and exhibit the queen. First prize, silver medal; second prize, bronze medal.

The conditions of the competition are the following, viz.:—Each competitor shall bring his own bees in the straw skep they have worked and bred in. They must be securely confined (properly ventilated) until the commencement of the competition. Each competitor may have one assistant, for the purpose of holding the hive, appliances, &c., but who shall take no part in the actual driving or search for the queen. The system of open driving shall be adopted. The remaining conditions are the same as those issued by the British Bee-keepers' Association. After the award of prizes has been made the bees may be returned to their hives and removed or sold at their owner's pleasure. No commission will be charged on bees so sold. The competition shall commence at two o'clock. (Signed)

JOHN HUNTER,
Hon. Sec. to the Bee Committee, 5 Eaton Rise, Ealing.

The schedule of prizes has already appeared.

The date of entry is enlarged to July 6th.

STIRLING FLOWER SHOW.

An exhibition of skeps, supers, and cups, and an observatory hive, will be held in connexion with the Stirling Flower Show, on Saturday, September 14, 1878. Parties who wish to take an interest in this matter will please send their names to R. S. Shearer, 6 King Street, vice-president of the Stirling Horticultural Association.

Correspondence.

AN APIARIAN DISASTER.

I regret that I am obliged to inscribe on one of my hives '*Cave apes.*' On returning home about mid-day a short time ago I was informed that my bees had, during the morning, been guilty of a sad misdemeanour. A hen with seven fine healthy chickens, under a coop, had been placed within two yards of one of my hives. Suddenly the bees had rushed out and fiercely attacked their unoffending neighbours, stinging them most mercilessly. The hen and chicks were at once taken into the house, but although every care was taken to remove the stings, &c., six of the chickens succumbed in a very short time: the seventh, being I presume at the time under the sheltering wing of its mother, had not been touched. The hen-mother was a sad sight, her head and neck were literally bristling with stings, and her eyes closed up. She seemed tosuffer much pain, and for two days was unable to eat; on the third day one eye opened, and on the fourth the other. After that she gradually threw off the effects of the virus, and at the end of a week she was herself again. I had no difficulty, on opening the hive that was next to the coop, in discovering the cause of this fierce onslaught. A bar, which barely reached the sides of a super, had fallen into the midst of the astonished bees, and they, fancying their domicile had been attacked, had rushed out with a full and fell purpose of wreaking vengeance on their disturbers. The punishment inflicted was indeed short, sharp, and decisive; but, as is too often the case with higher-reasoned beings, the innocent suffered for the guilty.—G. HENDERSON, *Ealing.*

LIGURIAN DRONES.

I have purchased some Ligurian stocks, and find that the drones are nearly black, although the workers are clearly marked with the yellow bands. Should you think that the queens are hybrids, or is it the nature of the Ligurian drones to be so much darker than the workers?—CAPT. C. A.

The question of colour in Ligurian drones has often been before the bee-keeping public, and it has been conclusively proved that their colour (like that of a Ligurian queen) is no criterion whatever by which to judge of the purity of the race. The colour of the worker-bees is the true test; and if they are all alike, *i.e.* all evenly marked (or nearly so, for in most hives there will be found a few black-tailed little fellows), we should be satisfied of their purity. Ligurian drones and queens, too, are often undistinguishable from black ones, but the worker progeny of dark queens is generally well marked.—ED.

BEE FLOWERS.

Allow me to add my testimony to your own and that of 'H. M.' as to the value of wallflowers to those who keep bees. I have only a very small strip of garden, but have had a wealth of golden glory in the spring months for years past; for my wallflowers, young and old, have been covered with blooms, at which the bees have worked with great zest for many a week. They can be cultivated by any one in any odd corner, or even on any old wall; but they amply repay a proper amount of care. I have also had some beds edged with forget-me-nots, which one of the poets calls 'Dearest of all flowers that gaily gleam in garden, field, or on the green hill's breast.' Oh, what fine feasts my pets have had from the pretty blue emblems of true love! I seem to have had the bees from all the neighbourhood in my little plot. Since I first grew them I have not found it necessary to sow seed, for I always find hundreds of seedlings about when the parent plants had long returned to earth, and their places been taken by the summer bedders. I strongly advise all who like to watch their bees at work to secure some seedlings of both plants at once.—C. T.

MILK-FEEDING FOR BEES.

1st. In the number of *Bee Journal* for June, is a letter, 'Bee-keeping in Ireland' wherein is mentioned about bees having taken twenty quarts of milk. Never having heard anything about bees having milk given them before, I was surprised. Will you say if you advise milk, and how it is given to them?

2ndly. I have some difficulty in making sugar-syrup reliably; it very often cakes white and opaque on the feeding-stage, and sometimes crystals are formed at the bottom of the vessel in which it is kept. As the life of a colony in winter depends upon a supply of proper food, I should feel much obliged if you could give a reliable way of making it.—'BAD LOCALITY.'

Milk feeding was described by the facile pen of a 'Country Doctor' in the April and May numbers of the *Journal* for 1877. We have never tried the mixture recommended, but the correspondent to whom you allude has evidently done so, and his word may be relied on. Perhaps he will kindly favour the bee-keeping world with his further experiences on the subject. Our way of making sugar syrup has been many times repeated. We use five pounds of best loaf sugar and two pints of water, and when boiling add half a wineglass of vinegar, and boil until it becomes clear. The various sugars now offered in the market make it impossible for any general direction to be absolutely correct, and therefore something must be left to experience and experiment. If it becomes hardbake, try a little more acid and water, more or less of either until the desired result has been obtained.—ED.]

MILK DIET FOR BEES.

Having noticed in your last *British Bee Journal* that your correspondent, 'J. I.,' found his Ligurian bees do admirably on milk-feeding, and also your correspondent, 'Br. J.,' says that five stocks of Ligurian bees took twenty quarts of milk this spring, I shall be glad if you will answer the following questions, as I have never heard of milk-food for bees. When, how, and in what quantities should the milk be given? I do not see how five stocks of bees could consume twenty quarts of milk, without storing a portion of it in their combs, in which case, would it not turn sour, and so destroy both bees and comb?—CAPT. C. A.

The reply to 'Bad Locality' gives all the information we can afford on the subject of milk diet for bees.—ED.

Echoes from the Hives.

'The comb foundation I had from Mr. Raitt is a great success. This morning (Monday) I found the queen had been laying in a hive into which the swarm was only put on Friday night, with the foundation.'—A London Bee-Keeper.

Bees in Green-houses.—Cinerarias.—'I see in the June *Journal* one of your correspondents complains of bees dying in the greenhouse. I had a good many bees come in mine and scarcely found any dead. They were nearly all Ligurians that came in: they came after the cinerarias the most. The cinerarias would be useful bee-plants for anyone with a greenhouse, as they flower when there are not many flowers about.

'I took the Ligurian queen that I had of you last year out of the hive on purpose to raise queen-cells, and they only raised one cell; I thought they always raised more. I was successful in putting the queen in another hive.—H. E. Roberts.'

An Improvement.—I was delighted to be able sit down to read the *Journal* on the evening of June 1. Coming, as it did, just as I was feeling worn out by a week of hard work, it acted like a tonic, for bees and bee-literature have been wonderful sources of relief to me for three or four years past. I have long wished that country subscribers could depend upon receiving the organ and their 'guide, philosopher, and friend,' on the first of each month, instead of waiting, as I have sometimes had to do, until the third or fourth. I hail with delight the improved arrangements in the publishing department.—A Somersetshire Bee-keeper.

Queries and Replies.

Query No. 257.—By this month's *Journal* I see you open your columns to readers as well as annual subscribers. I was not aware until April that such a valuable Journal was in existence. I intend to take it every month. In one of my stocks there is a lot of jet-black bees, which are thrown out by the others. Can you give any reason for it? I send you a sample of them. Please answer in next month's *Journal* if Devonshire is considered a good honey county?—W. C., *Devon.*

Reply to Query No. 257.—The jet-black bees are doubtless wild bees from the woods, driven by stress of weather to seek a livelihood by robbery; but the marauders are overpowered and killed. Devonshire is an excellent county for bee-keeping, as may be proved by reference to the wonderful supers obtained there by well-known exhibitors.—Ed.

Query No. 258.—My only stock is a Ligurian in a Stewarton hive. Last Thursday, at noon (June 20), I took an artificial swarm from it, exactly as directed in your leaflet. Through the kindness of a friend I was enabled to introduce a ripe queen-cell, right in the middle of one of the brood combs; this I did on Saturday evening at eight o'clock. On opening the hive last night I was surprised to find that the cell had been completely demolished: not a vestige appears to remain. I may say that there is plenty of brood in the combs, but they don't appear to have commenced *rearing* young queens. Now, please, what shall I do?—W. C., *Ickley, Leeds.*

Reply to Query No. 258.—The probability is that the queen has hatched out of the ripe cell, and that the bees have simply cut it down as is usual. We should thoroughly examine the hive again, and if there are no queen-cells should feel tolerably certain that there is a queen, even though she were not discovered.—Ed.

Query No. 259.—A swarm of bees having issued on May 28th, just before a thunder-storm, they all went back to the old hive, and of course I thought it was the rain that drove them back. The weather remained unsettled till Friday the 31st, when out they came again, and, I may as well say, in they went again. Saturday, June 1st, I was on the look-out for them, and was very pleased to see them come out for the third time of asking. I took her majesty off the landing-board, and found she could not fly, her wings being quite ragged. I put her on a bush where the bees seemed thickest, when I got about as many to join her as would make a very small swarm. Not being satisfied with my lot, I thought I would drive some more out to go with them, and accordingly did so; and to make still better I put the swarm on the old stand, and took the stock about fifty yards away. Everything seems to go right with the swarm, as it is about 4½ lbs. weight; the stock hive has a good many bees in it, and plenty of brood, but I find on Sunday the 2nd, that they have put out three young princesses all ready to fly; of course all this has taken place with a straw hive. Now I want to know in your next if the stock has any chance of surviving or likely to be any use; possibly I may know before July what I have done, and what the result, but a word from you will guide me in the future. I have two bar-frame hives 'Excelsiors,' which I like very much, and can work very well, considering I am only a young hand at bee-keeping. I have taken the *British Bee Journal* for nearly two years, so perhaps I think I know more than I ought to in the time?—T. Wilkinson, *Weymouth, June 3.*

Reply to Query No. 259.—The mystery in this case is easily solved. The queen could not go to the swarm, so it had to come back to her, after the manner of Mahomet and the mountain. The simplest course, when you found the queen, would have been to place her in another hive (partly filled with combs if possible), and put it, with her inside, in the place of the old stock. All the swarming and flying bees would then have come to the old stand, and would have stayed with her, and thus a good stock would have been established. Driving in such case would have been unnecessary. Swarming, driving, and removal having taken place, the old stock became so impoverished of bees, that further swarming was out of the question, and consequently, the first young queen that hatched into life, was permitted to slay her sisters. No great harm has been done to the old stock, and if the young queen now at the head of it becomes fertile, it will pull through. The *British Bee Journal* is a reliable guide (we say it without fear of contradiction), and we should only be too pleased if it was found as easy to refer to it for information as to us.—Ed.

Query, No. 260.—The Quilt.—I only put on one thickness of flannel for quilt this year, and my first swarm have already bitten it to pieces, so have replaced it with a bit of Brussels carpet; is that usual and correct?—V. H.

Reply to Query No. 260.—Bees have an intense dislike to contact with fibre of any kind, and wherever they find it, they pull it out if they can do so, hence fibre by fibre they tore your house flannel to pieces. The first cover next to the frames should be a light, smooth, non-fibrous material, and the best is undoubtedly hair cloth, of the kind hair sieves, used for straining milk and gravies, are made of. They are, however, too expensive for general use, although in the long run they are cheap, as they will last for years, in fact may be considered indestructible. The next best thing is ticking, which, when laid on the frames and bees, is light, and will not hurt the latter, but gives them a hint to get out of the way, which they do by getting between the combs; next to that we place house flannel as a cheap and useful material, but anything of a porous nature will do. Many on top of the ticking lay a canvas bag filled with chaff, moss, or bracken, but carpet or old fish baskets will answer the purpose.—Ed.

Query No. 261.—Two questions I want to ask you to be kind enough to answer for me if you will:—1. Why do drones go with first swarms, seeing they (the

swarms) are headed by laying queens? 2. Are rhododendrons of any use to bees, as in Finsbury Park, quite near, there are thousands of the common sorts of that shrub? The sycamore-trees hereabouts this year have not bloomed, and a large source of honey was thus closed this spring. I put on a super of ten sections on the 27th of April, and the bees quickly filled it, excepting the outside combs, which they left unsealed; the bad weather we have had has caused them to empty the unsealed cells?—A London Bee-Keeper.

Reply to Query No. 261.—As a rule very few drones go off with swarms, and such as do generally return to the parent hive in a very short time. Some bee-keepers, however, place the new swarm in the place of the old stock, and then the flying drones join it, knowing no other home. Artificial swarms (so called) generally contain a number of drones, because in making them it is usual to stand them in the place of the old stock as above indicated. If such swarms be left in the garden in which they are made, the drones will leave them, and find their old domiciles; but when they are sent to a new country (as we suspect yours to have been) they live in the hive with the swarm as long as the bees will permit them, and then pay the penalty of their uselessness in such a position. Rhododendrons are excellent shrubs for bees, and good 'gap-stoppers,' as they come in the interval between fruits and clover. We believe sycamores to have failed generally this year. Mr. Pettigrew, writing in the *Journal of Horticulture*, makes mention of the fact, and hereabouts there has not been a sycamore blossom.—Ed.

Query No. 262.—I have eight flourishing hives—two Standard, three Cowan, and three Stewarton. They are all full of bees, and almost full of comb, though too much of the latter, from over-feeding, is drone instead of worker-comb. But how am I to get the honey? I took a frame full of honey last autumn by the advice of a learned apiarian, and have been rewarded with drones enough and to spare, whereas, I imagine, I should have been content with honey from supers or honey from boxes. Should I take super honey only? But my bees have not yet (June 22) entered the supers.—*Berkhampstead, Herts.*

Reply to Query No. 262.—Unless comb honey is especially desired, we would extract every drop from all the hives, to give the queen ample space for breeding, and would put on supers at once, and let the bees do their best in them. If extracted honey is not cared for, it can be fed back to the bees for them to store in the supers. Now that the weather is propitious, if the supers be well fitted with comb foundation, the bees would probably take to them at once, and fill them. If the bees are slow to go up, try the driving process, *i.e.* drum the hive until the bees go up, as in artificial swarming. We have it on excellent authority that it is often highly successful. As regards the drones, it is a singular fact, that notwithstanding their being so numerous, the hives are 'flourishing.' We mention this in passing, because there is a prevailing feeling against drones, whereas *we* believe that their existence in fair numbers conduces to the prosperity of bee communities. When they are not wanted, the bees will give the hint, and then trapping will save bees the labour of killing them. What the drone influence is we are unable to say, but they appear to have an effect, which from the busy bustling which their presence in numbers causes, we presume is magnetic.—Ed.

Query No. 263.—Artificial Swarming.—I have put two frames, Ligurian brood, in a hive on the stand of some English bees, removing them to a new stand; the Ligurian frames are all right, but the old (removed) hive has killed its drones and seems very poor in bees to fetch honey and pollen in, though there are still plenty of bees in the hive. Kindly inform me what is best to do with them.—R. A., *Leeds.*

Reply to Query No. 263.—Whatever the object may be, it is a bad practice to make artificial swarms without giving them fertile queens, and whoever teaches to the contrary is no true apiarist. The queen of a hive should always go with the swarm from it, whether naturally or artificially formed, and many reasons can be given for such doctrine if any one disputes it.

Considering that all the pollen and honey gatherers left the removed hive to form the swarm in that containing the Ligurian brood combs, it is not very remarkable that the said hive is now weak in bees of that class. A little time will probably remedy the evil, and the best thing to do is to let them alone in the meanwhile.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Salcombe.—*After-swarms.*—We have often explained that after-swarms are led off by young queens, and do not, as is the case with first swarms, gather on a bush or tree waiting for the queen to come to them. Each young queen that issues has a separate following, and when several come forth at once they often cause a great commotion. Probably one of the young queens, attracted by the busy hum of another hive, endeavoured to join it with her retinue, and hence the uproar. Swarming bees are generally well filled with sweets, and though they alight on or under another hive, they seldom attempt to enter until evening, in consequence of the great heat they would cause. Why they were resisted, and what caused the fighting and destruction of bee-life, we are unable to say; certainly it is not usual in such cases. Had it occurred with us, we should have raised the hive an inch on two bits of wood laid across the floor-board, and have given the belligerents a good smoking until they were united.—Ed.

John Cree, *Balderston, Newark.*—Bees that are sufficiently numerous to hang outside the hive can scarcely be accounted queenless. Queenless stocks generally dwindle away through the death of the bees, and there being no young ones to take their places. They are probably hanging out waiting for better weather, to swarm; but if like last year, better weather does not come, they will do as they did then, and be profitless. Why not swarm them artificially and set them to work? If you fear to undertake the task, perhaps some Newark bee-keeper, who is not afraid, will volunteer to keep you.

H. F. L.—The hive appears to be complete, the quilt requires nothing to keep it in its place when the roof of the hive is on. If no roof be used, as, for instance, when the hive is placed in a bee shed, an adapting board would prevent the quilt from being displaced by the wind. The ticking goes next the frames. In putting on supers the quilt is removed and the supers placed directly on the frames, or an adapting board is interposed between them. If smoke be used during the operation there is nothing to fear. The reason the bees in the supered hives are not 'working heartily' is because the wet and cold weather will not allow them to do so. Bees do not make honey, they simply collect it when it is secreted, and during bad weather they must be forgiven if they do not quite fulfil the expectations formed.

One Acre Farm.—An acre of land is too small a plot on which to grow a sufficiency of bee-food for bees when they are prevented by the weather from getting their full supply. An acre of mustard at the present season, between the fruit and clover blossoms, would form a nice means of a dozen stocks tiding over the time, and the seed grown would pay for the cultivation; but without good surroundings an acre would be of little use for a bee-farm.

*** The numerous announcements of forthcoming Bee Shows have obliged us to curtail our 'Correspondence.'

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Instituted October 1875. President—The Right Rev. Bishop Suffragan of Nottingham.

THE Association will hold their THIRD GREAT ANNUAL EXHIBITION of HONEY, BEES, HIVES, &c., and Practical Apiarian Manipulations, at STAMFORD, on Tuesday, Aug. 13, 1878.

SCHEDULE OF PRIZES.

Class

BEES.

1. For the best Stock, or Specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive ... ... 20/0, 10/0, and 5/0
2. For the best Stock, or Specimen of English Bees, to be exhibited with the Queen in an Observatory Hive ... ... 10/0, 7/6, and 5/0
3. For the best Stock, or Specimen of any species or distinct variety of Honey Bees, other than Ligurians, or the British Black Bees ... ... 20/0, 10/0, and 5/0

HONEY.

4. For the largest and best Supers of Honey, the produce of one Hive ... ... 20/0, 15/0, 10/0, and 7/6
5. For the best Glass Super, over 30lbs. nett weight ... ... 20/0, 15/0, and 10/0
6. For the best Glass Super, under 30lbs. nett weight ... ... 15/, 10/0, 7/6, 5/0, and 2/6

SPECIAL PRIZE.—Presented by C. N. ABBOTT, Esq., Fairlawn, Southall. A COMPLETE BAR-FRAME HIVE for the best and largest Super of Honey exhibited in Class 4, 5, or 6, by a Cottager, *who shall be a Member of the Association.*

7. For best Wood, or Wood in combination with either Glass or Straw, Super of Honey 15/0, 10/0, 7/6, 5/0 and 2/6
8. For the best exhibition of Honey in Supers, or Sections of Supers, separable, and each not more than 2lbs. in weight, the total weight of each entry to be not less than 10lbs. 10/0, 7/6, 5/0, and 2/6
9. For the best Straw Super ... ... 10/0, 7/6, 5/0, and 2/6
10. For the best Glass of Extracted or Run Honey, of not less than 5lbs. nett weight; quality to be the chief point of excellence ... ... 10/0, 7/6, 5/0, and 2/6
11. For best and largest exhibition of Extracted or Run Honey, in Glass or other Jars 20/0, 15/0, 12/6, 10/0, 7/6, and 5/0

SPECIAL PRIZE.—Presented by Mr. R. R. GODFREY, Grantham. Current Vol. of B. B. JOURNAL for the best exhibit in Class 9 or 10, by a Cottager, *who shall be a Member of the Association.*

SILVER CUP.—THE SILVER CUP OF THE ASSOCIATION, open to Members only, for the best and largest exhibition, in all or any of the Honey Classes, of Honey taken without destroying the Bees. The Cup to become the property of the Member who shall Win it THREE TIMES.

12. For the finest sample of pure Bees' Wax, in cakes of not less than 2lbs. ... ... 5/0 and 2/6
13. For the best Liqueur, Wine, or Mead made from Honey, with the recipe attached ... ... 15/0, 10/0, and 5/0

All Honey must be the bonâ fide property of the Exhibitor, gathered by his or her Bees in the natural way this year (*see Rules*).

HIVES.

14. For the best Hive for observation purposes ... ... 20/0 and 10/0
15. For the best Complete Hive, on the Moveable Comb principle ... ... 20/0, 10/0, and 5/0
16. For the best and cheapest Complete Hive, on the Moveable Comb principle ... ... 15/0, 10/0, 7/6, and 5/0
17. For the best and cheapest Straw Skep of any description ... ... 7/6, 5/0, and 2/6
18. For the best and cheapest Supers for general use in an Apiary ... ... 10/0, 5/0, and 2/6
19. For the best Honey Extractor. Portability and cheapness to be considered ... ... 20/0, 10/0, and 5/0
20. For the best and most Complete Collection of Hives, Bee Furniture, and Apiculturist's necessaries 30/0, 20/0, and 10/0

Exhibitors must guarantee to supply any number of Hives, &c., at the prices quoted.

21. For the best and most interesting Collection of Natural Objects, Models, or Diagrams, connected with Apiculture, and illustrating the Natural History and Economy of the Honey Bee ... 20/0, 15/0, and 10/0
22. For the best and largest Display of Honey Producing Plants, in a dried state or otherwise, such Plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers. 1st Prize, *Langstroth on Bees*. 2nd Prize, *The Gardener*. 3rd Prize, Current Vol. of *B. B. Journal*.

RULES.—Every intending Exhibitor must send his Name and Address, enclosing Entrance Fee to the Hon Secretary before August 1st, 1878.

Entrance Fees.—For any number of Exhibits in either of Classes Nos. 1, 2, 3, 13, 14, 15, 16, 18, 19, 20, 21, and 22, Two Shillings for each Class. In all other Classes, One Shilling for each Class.

Entry Forms will be supplied on application to the Hon. Sec., or forwarded on receipt of a stamped envelope.

All Exhibits must have a label attached, *distinctly marked*, with number of the Class for which they are intended, and if for Sale the price must also be *distinctly marked* on, and in the Honey Classes the *net weight* and *price*, which must include the vessel or package containing it. The Association will *not* undertake to break bulk, nor allow it to be done.

No Exhibit shall be allowed to compete in more than one Class.

Any person Exhibiting Honey for Competition which is not this year's produce, and gathered by his or her own bees in the natural way, will be disqualified in all Classes throughout the Show, and all such Exhibits will be marked *disqualified for fraud*. The Judges will be specially instructed to enforce this rule.

The Association will provide Salesmen, through whose hands all monies must be paid; the Exhibitor will be charged One Penny in the Shilling commission on all Sales. The Committee are desirous that all Exhibits should be delivered at the place of Exhibition by 6 p.m. on Monday, August 12th. None will be admitted after 10 a.m. on the day of Exhibition. The Judges are empowered to withhold Prizes if the Exhibits in any Class are not considered of sufficient merit. Members and Exhibitors will be admitted to the Exhibition Free. No Exhibit to be removed until after the Close of the Exhibition, except Honey, which *purchasers* may remove by permission of the Committee, provided that the same has not obtained a Prize. The Committee will take every care of all Exhibits entrusted to them for competition, sale, or otherwise, but they will not be responsible for any loss or damage from any cause whatever.

MANIPULATION WITH LIVE BEES.—Practical illustrations of Manipulating with Live Bees, showing the best Methods of Driving, Making Artificial Swarms, Transferring Combs from Straw Skeps to Bar-frame Hives, Finding Queens, &c., will be given during the day of Exhibition, by the great Bee-master, Mr. C. N. ABBOTT; also by the Rev. D. W. PENNELL, Mr. J. G. DESBOROUGH, and Mr. R. SYMINGTON. Arrangements will be made by which visitors may view with safety the mysteries of the Hive, and witness the perfect command the Scientific Apiarian has over his Bees.

The Committee will feel obliged by your making the Association and its objects, as well as the forthcoming Exhibition, known amongst all who take an interest in Apiculture and the welfare of our Cottagers. The Committee have given careful consideration to the Prize Schedule, which they hope will give general satisfaction. Eminent Apiarists have kindly promised to be present, and will explain the various exhibits. By order of the Committee, R. R. GODFREY, Hon. Sec.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 64. Vol. VI.] AUGUST, 1878. [Published Monthly.]

Editorial, Notices, &c.

AUGUST.

From reports which we have received from all parts of Great Britain, and Ireland too, we think we may safely class the present year as one of the most prolific in honey that can well be remembered, and happy are they who have acted up to the first principle in apiculture and 'kept their stocks strong' in anticipation of the great harvest which came upon us so suddenly, yet has continued so long. It is not often that bee-keepers are favoured with five successive weeks of splendid honey weather in the height of the honey season, when, swarming being comparatively over and stocks established with young queens, there is nought for bees to do but to prepare for winter, and lay up as much extra store as possible for their jubilant owners. Yet in this year of grace we have been so favoured, for from the 20th of June to the 25th of July fine weather has ruled, and heat and honey have been scored higher in their respective meters than have been known in this hemisphere since the wonderful comet month of July, 1874. Heat and honey are old summer friends, and where the former exists the latter will always be found until drought through excess of heat dries up the herbage; and during the period alluded to the whole of the summer, and several of the autumn, crops have been forced into luxurious existence, producing an enormous honey yield, which has filled the supers of careful apiarists, and at the forthcoming shows will doubtless astonish the world. Of course, there are bee-keepers) too often, alas! bee-destroyers) who will not adopt the principles advocated in the present day; they will *not* believe in any system which is not ancient, and, being satisfied with mediocrity, are content with what under the improved system of bee culture would be scarcely noteworthy; but we would advise all such laggards to visit the shows which will take place in their nearest vicinity, and compare *their* results with such as will be exhibited by their neighbours who have adopted the 'new-fangled' system of bee culture, and we have little doubt but that their faith in the wisdom of adhering to old methods will be seriously shaken.

Already we have heard of a celebrated Scotch apiarian who owns a hive ('with some new ideas in it') that weighs over 200 lbs.; that he has now upwards of 5 cwt. of super honey; and, considering that the heather season has not yet begun, what his total harvest will amount to, if favourable weather continue, will be something fabulous.

In many parts of England the honey harvest closes before the end of July, a fact which will be sufficiently indicated by the bees carrying down the honey from unsealed cells in the supers; but there will still be numerous sources from which, during fine weather, the bees will be able to get a hand-to-mouth living. In heather countries a second harvest may be anticipated; and after that there will in favoured spots be large supplies obtainable from the ivy, the last late source which furnishes a nectar that quickly solidifies, and can thus be sealed without much evaporation by the bees, and may therefore be relied on for their winter use, a condition not found in many late-gathered honies.

WORK FOR THE MONTH.

Remove all supers that are completed, and rid them of bees as quickly as possible. Bell-glasses, and old-fashioned non-divisible supers should have a little wood smoke gently driven in at the top, which, if the super be sealed throughout, will cause a great majority of the bees to descend to the hive below, when the removal can be effected with much less than the usual trouble; if, however, there are many open honey-cells in the supers, the smoke will cause some of the bees to help themselves to the honey in them, and such having gorged, will be difficult to expel, as they will be half stupefied as well, and as the super gets cool they will be inclined to huddle together rather

than take wing. To clear supers of bees, they may be placed in a tub (a flour tub will do) which should be laid on its side, and the open end covered with a piece of cheese-strainer, and as often as convenient the strainer should be taken off and reversed, so that the bees that were inside may find themselves outside, and this repeated will soon allow all to depart. Glass supers should be darkened before being thus treated.

Another plan is to put such supers in a box well ventilated but dark, and having only one small opening where light could be seen to fix thereto a bee trap that would permit the exit, but prevent the return of the bees.

A third plan is to carry the super about and drum it, using a feather the while to brush off the bees that come to the surface—a method requiring more nerve than is generally to be found with amateurs, but highly effective notwithstanding.

Sectional supers when filled should be lifted off bodily and inverted, and at the same time the hive should be closed down as if it had not been disturbed, so that robbing may not be provoked. The sections should then be taken apart, and the bees having been brushed off, as near to the hive as convenient, each should be wrapped in paper and set aside until night, when they may be opened and repacked as fancy dictates, care being taken to exclude bees, ants, and moths. During these operations bees sometimes sting 'where it hurts,' and we advise nervous bee-keepers to protect themselves with veil and gloves; and otherwise, where there is fear of bees creeping under the clothing. When supers are not completed, and the bees by carrying down the unsealed honey give the hint that the harvest is over, we generally allow them to finish the work. Unsealed honey will not always keep, and it is better to let the bees take it down than to risk its spoiling the sealed contents of a super when both are run out together.

Drones.—Hives should be carefully examined now (at close of summer harvest), and if drones exist in quantity in any one, while in neighbouring hives they have been destroyed, it may be inferred that the stock is queenless and requires immediate uniting with another adjacent, for as a rule it is most difficult to ensure the acceptation of a queen by a stock long queenless, and therefore we do not recommend requeening, or giving queen-cells or brood at so late a date.

Heather harvest.—There is often a lull between white clover and heather, as between fruit blossoms and white clover, although it may happen through favourable circumstances that the respective honey sources 'touch' each other; it is nevertheless desirable that the times and seasons should be watched, and if a *lull* in the yield *does* occur, to tide it over by gentle feeding so that the bees may keep up their breeding, and be *fit* when the heather yields its wonderful secretion.

Advanced bee-keepers should not let poor neighbouring cottagers destroy their bees without a timely word of advice, or offers of assistance. Showing them how to save what otherwise they would destroy must have a good effect, even though it be not immediately exhibited. From every two or three stocks of condemned bees enough bees, comb, and brood may be saved to fill a Woodbury Hive, and all the honey having been taken, a dozen pounds of loaf sugar made into syrup and judiciously given to them, costing only about 3*s.* 6*d.*, will form them into as good a colony as could be found anywhere; all saved from the brimstone pit.

Should bad weather set in so that bees cannot get abroad, their income and their breeding will stop, and great injury will thus result because no young bees will be forthcoming, and hence those that go into winter quarters will be comparatively aged, a fact that will tell strongly against the hives' prosperity in the ensuing spring.

On removal of supers robbing should be provided against by narrowing the entrances of hives. Wax-moth should be removed and floor-boards cleaned. Important operations had better be performed late in the day, so that should the odours of honey disturb the apiary, the approach of night would put it to rest, and perhaps prevent much loss by fighting, &c. Destroy wasps' nests, spiders, ants, &c., and clear away all the webs and *débris* they may have occasioned. Paraffin poured into ants' nests is said to destroy them, and turpentine will destroy wasps' nests.

MANAGEMENT OF BAR-FRAME HIVES.

Although in the hands of 'experts' bar-frame hives of good construction are the greatest aids to successful bee-culture, there are many who, through not understanding the facilities they offer, mistake their purpose and condemn them. There *have been* hive-makers who would have the public believe that they had only to purchase *their* hives and stock them with bees to be sure of a large return in honey, or an increased number of swarms, and many and bitter have been the consequent experiences; but, from the beginning of our public career, we have endeavoured to show that hives are merely *domiciles* for bees, suitable or not, according to *the nature of the locality:* a consideration involving 'size of hive,' 'strength of swarms,' and quality of the bee pasturage. We do not even pretend that the very best hive ever constructed will enable its stock of bees to obtain an ounce more honey than they would if they were located in a hollow tree, for hives (bee domiciles) have no influence on the

secretion of honey in flowers, and bees can only collect it when it has been secreted. But we do claim, in respect of bar-frame hives, that they afford facilities by means of which the *bee-master* may by judicious management prevent a great waste of honey in the formation of useless comb, and the feeding and production of an excessive number of drones, that would be consumers only, and further that they enable him at any time to ascertain the exact condition of the bees, and to give them such assistance as may be considered necessary. We refrain from discussing the relative merits of hives: their name is Legion, and they are well before the public, and each will choose for himself, and we shall therefore content ourselves, and we hope satisfy our readers, by a brief description and explanation of the various parts of a properly-constructed hive, and their uses.

The parts of a hive are the body-box and frames, floor-board, quilt, adapting-board, supers, super cover, roof, entrance, slides, and stand.

THE BODY-BOX (or hive proper) is intended to hold the frames, which may be of any number consistent with the character of the swarm and its pasturage. It is not always possible to judge exactly of the probable produce of a swarm, and therefore it is sometimes necessary to provide a dummy frame that will enclose, or cut off, a certain portion of the body-box. This is preferably done by filling a frame with a solid piece of board, or by casing it on one or both sides with board of a quarter inch thickness. THE FRAMES are intended to contain the combs, and that the latter may be built straight and correctly within them (the frames) guides are fixed along the under side of their top bars.

THE FLOOR-BOARD, as its name implies, is to form the floor of the hive: it is best when it is exactly alike on both sides so as to be reversible, but that advantage may be compounded for by having two, so that when one is wet or dirty the other may be substituted. Many prefer that the hive entrance be cut or tunnelled in the floor-board, but we think it an objectionable practice.

THE QUILT is an innovation of our own in British bee-culture: its use was common in America, and, seeing its advantages, we introduced it as an integral part of a hive with the happiest results, notwithstanding the stormy opposition of a quasi-authority. Its purpose is to confine the bees to the body-box, yet to permit the gradual escape of the vapours generated by the bees within. It should consist of a layer of smooth, hard fabric which the bees cannot bite, to go next the frames, and a number of layers of any porous material to go upon it. When feeding is necessary a small hole, about $1 \times \frac{1}{2}$ inch, should be cut through the whole between two of the frames on which the bees are clustering, and over this hole a feeding-stage should be placed which will permit the bees to obtain food from a bottle. When supers are put on to a hive the quilt should be removed; but if the frames be not *covered* by the supers, portions of the quilt, or similar material, should be laid upon the exposed surfaces. The best material to go next the bees is hair-cloth, similar to the bottoms of hair-sieves used in kitchens as strainers, it being indestructible by the bees, and, being of loose texture, is easily freed from propolis by stretching it diagonally. The quilt should not have anything laid upon it which will confine the vapours of the hive: its purpose being to permit upward, insensible ventilation.

THE ADAPTING-BOARD is an ancient relic, often highly-valued even now. Originally it was composed of thin board with slots cut into it, which were supposed to deter the queen from entering the supers above it. The slotted adapter gave way to one composed of perforated zinc, the round holes in which were intended to permit the passage of bees, but to exclude drones and queens. It was often successful, but sometimes not, owing to the difficulty which arose when bees died in the supers, and the surviving bees could not get them back again—hence a commotion and loss of life. Through our correspondence with the translator of the interesting French work on Bee-keeping by the Abbé Collin, the round-holed perforated zinc has given place to that with elongated holes, which is sold as 'Abbott's specialty,' and of which we have not yet had an adverse opinion. Adapters, so called, are now out of the market, as the zinc-named, if laid upon the frames, is as a rule both queen and drone excluding, yet will permit the passage of live bees, and the dragging out of dead ones.

SUPERS may, as is implied in the foregoing, be placed above the frames of a hive with only the zinc named intervening. They may be of any size or shape, as the fancy of the bee-keeper may dictate, and any parts of the hive not covered by the supers may—nay, should, be covered with quilting material—slips of old carpet answer well for such purposes, and they will not warp as wood often will.

SUPER COVERS are now-a-days made part and parcel of *the roof*. In some instances they are separate, as they were in the days of their first promoter, when an outside casing for a hive cost 35*s*. Their purpose is simply to cover the supers when placed on the hive, and to keep all dry and shaded.

ENTRANCE SLIDES are to enable the bee-keeper to contract an entrance to a hive in case of robbing, or cold, windy weather. When an entrance needs greatly enlarging, as it may in hot weather, it is better to raise the hive from its floor along the whole front; or, as is possible in the best hives, to lower the floor-board, giving means of entrance all round.

STANDS are often high-priced absurdities; two as per direction in *Bee Journal* for May, p. 6, pieces of board halved crosswise into each other, value about 6*d*., answer all ordinary purposes, but it must be left to the fancy and the purse-power of the bee-keeper to adopt what best pleases him. We caused the adoption of fixed legs to hives, and believe the principle to be the correct one. We have not herein given nadirs or collateral boxes place, they not forming part of, though applicable to, the bar-frame principle, but perhaps in a little while their uses may be better recognised, and their adoption become more general.

ENGLISH AGRICULTURAL IMPLEMENTS AT PARIS.

The 'Own Correspondent' of the *Lincolnshire Gazette*, in an article on the above subject, thus notices English beehives :—

'Passing on to another description of exhibits, which in the French section are exceedingly numerous, namely those in Class 83, which comprises "Useful and Noxious Insects," we find a very ingeniously constructed hive, shown by Mr. C. N. Abbott, Southall. It is made on a new and humane principle, whereby the bees are no longer in danger of being crushed, while the greatest conveniences are assured to bee-keepers at a moderate cost. The sides are double, to ensure warmth and dryness, and to admit of the removal of the frames, which are interchangeable. Improved beehives are also shown by Messrs. G. Neighbour and Sons, London, and Mr. B. Wilson, Newbury.'

BEE SHOW AT EALING.

The general success of the shows of the Ealing, Acton, and Hanwell Horticultural Societies, coupled with the fact that apiculture, as a sister science, is rapidly gaining ground in England, afforded ample reasons for making an attempt to establish in connexion with such excellent organization as the Society has always displayed under the management of R. Dean, Esq., its hon. secretary, an exhibition of bees, hives, honey, and wax, and at the same time to give examples of the methods of manipulation with live bees, by which the public might learn from observation what otherwise they could only read of. A large committee was therefore formed, with ample powers ; a prize schedule sent out ; and Mr. Hunter, formerly hon. secretary of the British Bee-keepers' Association, became hon. secretary for the occasion. In our last we were authorized to give notice of the extension of the time of entrance to Saturday, July 6th ; but on the previous Saturday, Mr. Hunter, finding he had not received a single entry, proposed the abandonment of the show, which resolution having been seconded, was carried. It was then proposed that, as an exhibition of bees had been announced, Messrs. Abbott Brothers be invited to provide a means of filling the gap caused by the collapse of the first proposal ; and after considerable discussion the motion was carried by a majority of fifteen to two.

In consequence, and at short notice, the whole matter was undertaken by the firm alluded to, and was a complete success. The *Middlesex County Times* reports as follows :—

'It now becomes our duty, as well as our pleasure, to refer to another and very interesting feature in the show, viz., the bee manipulation. With the view of inciting a competition in respect to bees and bee appliances, the Society offered a number of prizes, but owing to the backwardness of the season there was no competition. In order, however, to meet the deficiency, Mr. C. N. Abbott, bee-master, of Southall, consented to bring his hives on to the ground for the purpose of illustrating the working of this industrious insect, as well as the mode by which they are dealt with. A separate tent was set apart for this exhibition, and it was constructed in a manner specially adapted to the purpose. In the course of the day, large numbers of persons visited the tent to witness this truly wonderful performance, and all who visited must have gone away with very favourable impressions respecting the busy bee. In addition to the manipulation, which, as conducted by Mr. Abbott, showed that with kindness and care there is really nothing to fear from bees, there was an exhibition of appliances, brought out by Mr. Abbott himself, and which appear to be a marked improvement upon the old hives. Mr. Abbott deserves public thanks for his energy in promoting an interest in bee-keeping, not only in Great Britain, but also on the Continent.'

BEE SHOW AT SEVENOAKS, KENT.

An exhibition of honey, hives, bees, &c. will be held in Montreal Park in connexion with the Sevenoaks Horticultural Society's show on the 22nd of the present month. The prizes are open to all England, and include a silver and bronze medal offered by the British Bee-keepers' Association for the best exhibitions of honey in sectional supers. There are three classes for cottagers only, and those of West Kent are allowed to compete without entrance-fee. a very proper feature in such a show. It is, however, to be regretted that 'manipulation' is not included in the list of attractions, as it is so highly educational, and gives a tremendous stimulus to improved bee-culture. The entries close on the 14th inst., and intending exhibitors must apply for full particulars to the Hon. Sec., Mr. Stepney, Sevenoaks, Kent. All inquiries must be accompanied by a stamped directed envelope.

BRITISH BEE-KEEPERS' ASSOCIATION.

May I again, through your columns, ask those bee-keepers who have not yet contributed towards the expenses of our approaching exhibition at South Kensington, to send a contribution either to the treasurer or myself as soon as possible ? The expenses attendant upon such an exhibition are considerable, independently of the Prize Fund, and the committee is very anxious to be able to meet them without encroaching upon the general fund of the Association.—HERBERT R. PEEL, *Hon. Sec.*

The following is a list of donations given and promised to the Prize Fund, 1878 :—

The Baroness Burdett-Coutts ..	£5	0	0
Rev. H. R. Peel	20	0	0
Rev. Chas. Cotton..	2	2	0
T. W. Cowan, Esq.	1	1	0
J. M. Hooker, Esq.	1	1	0
J. Hunter, Esq.	1	1	0
Mr. C. N. Abbott	1	1	0
Rev. E. Bartrum	1	1	0
H. G. Morris, Esq.	1	1	0
R. R. Godfrey, Esq.	1	1	0
G. Walker, Esq.	1	1	0
F. R. Jackson, Esq.	1	1	0
G. Minson, Esq.	0	10	6
D. Stewart, Esq.	0	10	6
J. G. Desborough, Esq.	0	15	0
J. Hale, Esq.	0	10	6
W. Freeman, Esq.	0	10	6
Mr. J. A. Abbott	0	10	6
Robert Thurston, Esq.	0	10	0
Rev. J. L. Sisson	0	10	0
S. Simmins, Esq.	0	10	6
C. H. Hodgson, Esq.	0	5	0
Rev. E. Ryley	0	5	0

F. H. Lemare, Esq.	£0	5	0
C. Wade, Esq.	0	5	0
To the General Fund Baroness Burdett-Coutts	20	0	0

Committee Meeting.

Committee meeting held at 15 Beaufort Buildings, Strand, Monday, July 8, 1878: present, Messrs. Hunter, Glennie, Stewart, F. R. Jackson, Hooker, Freeman, Rev. E. Bartrum, and Rev. H. R. Peel, Hon. Sec. Mr. Hunter was voted to the chair. The minutes of the last committee meeting were read and confirmed. It was announced that the tent for use at local and other shows was now complete, and the Secretary was instructed to get the rules and regulations printed under which the tent should be lent to local committees. It will be used for the first time at South Kensington on Tuesday, August 6th. The enclosure for manipulator is nearly twenty feet in diameter, and the covered way for spectators six feet in breadth.

Several letters were read from persons in answer to the advertisement inserted in the *Bee Journal*, and it was the general opinion of the meeting that Mr. W. J. Baldwin would be a suitable man to work for the Association, and the Secretary was instructed to apply for references and character, and to make arrangements for his employment. The Secretary announced that the authorities at the Horticultural Gardens had offered every facility for the holding of the show. Decided that the driving competition should take place on the first day of the show, commencing at two o'clock, and other manipulations on the following days. The Secretary announced that the Baroness Burdett-Coutts had very kindly given 20*l.* to the General Fund and 5*l.* to the Prize Fund for the forthcoming show. It was decided to award one silver and two bronze medals as prizes for honey at the forthcoming Devon and Exeter Show.

The following is a list of the gentlemen who have consented to officiate as judges at the Show:—Rev. F. T. Scott; Rev. J. D. Glennie; Hon. and Rev. H. Bligh; Rev. G. Raynor; Rev. J. L. Sisson; —Tegetmeier, Esq.; H. Bostock, Esq.; T. F. Ward, Esq.; W. Carr, Esq.; J. G. Desborough, Esq.

BEE-KEEPERS' ASSOCIATION FOR WEST HERTS.

It may interest some of your readers to know (as a proof that the interest taken in bee-keeping is on the increase, and not on the decline) that at a meeting held yesterday in the Town Hall, Hemel Hempstead, it was resolved to form a West Herts Bee-keepers' Association, and that there is every prospect of this branch of the parent stem meeting with support and success. Mr. Gulston, of King's Langley, a most intelligent and enthusiastic bee-keeper, has undertaken the office of hon. secretary. —Herbert R. Peel, *Abbot's Hill, Hemel Hempstead.*

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The committee of the above Association have much pleasure in announcing that their second great exhibition of bees and their produce, hives, and bee-furniture, will be held in the pretty grounds of Northenhay House, Exeter (kindly lent for the occasion by Mrs. Carr), on Friday, August 23, 1878, at the same time and in connexion with the Flower Show of the Devon and Exeter Botanical, Horticultural, and Natural History Society, which will be held at Northenhay, adjoining the above grounds.

Good prizes will be offered for honey, hives of various kinds, supers, honey extractors, and bee-furniture generally. In the schedule is a handsome entomological vase, richly chased with blackberries and dragon-flies, value 5*l.*, the gift of the president, W. H. Ellis, Esq., to be awarded for the best bar-frame hive (open competition). Amongst other prizes in the classes for honey are one silver and two bronze medals, kindly presented by the British Bee-Keepers' Association. If the necessary arrangements can be carried out there will also be some interesting practical apiarian manipulations, such as driving, transferring, &c.

Forms of entries, schedule of prizes, and further particulars will be forwarded on receipt of a stamped envelope by the honorary secretary. Entries close on the 19th of August. Wm. N. Griffin, *Hon. Sec.*

Rock House, Alphington, Exeter.

HINTS ON JUDGING.

In view of the coming shows, where the judgment given on the various matters will, as heretofore, be liable to criticism, it may not be out of place if out of the depth of our experience we offer a few hints on the subject, not in any spirit of dictation, but in the hope that the critics, at least, may profit thereby. We do not for a moment suppose that any gentleman will accept the office of judge under any conditions if he does not believe himself qualified to give a fairly sound opinion on the several questions brought under his notice; and, by the same rule, those who quiz his judgment believe they are equally efficient. But, in the nature of things, a judge and an adverse critic cannot have viewed the matters in question from the same standpoint, though each may be perfectly honest in his opinion. Judges of hives and bee furniture are not in the same category with those who give opinions on fruit or vegetables, for already there are standards of excellence in regard to the latter, and as a rule their duty is therefore to make the awards to those whose products most nearly approach thereto; but in relation to the judging of hives, &c., there is nothing defined and no special excellence described, but the demand is '*for the best*'—a demand often absurdly coupled with 'the cheapest'—and it is left to the judges to form their own conclusions, and thus, at different exhibitions, the judges not being the same, and there being no guiding principle, the awards for the same exhibits are as varied as the ideas of perfection which influence the minds of those who sit in judgment—to wit, 'best workmanship,' 'best material,' 'best appearance,' 'best finish,' and 'most ornamental design;' 'cheapness' being generally a secondary matter of opinion, depending on what is implied by 'immediate cost' or 'in the long run.' Every year brings forth something new—some improvement that, if it has been proved at all, has probably passed the ordeal under the eyes and

hands of the inventor only. His idea may be '*excellent*,' yet he may fear to entrust it to a hive-maker, and he makes his new notion for himself from the material obtained by the purchase of an old egg-box, and in the flush of pride at having hit upon a good idea he sends it to a show—with what result? The 'workmanship' is faulty; the 'material' is bad; it has no 'appearance' or 'finish,' and is not 'ornamental;' and possibly, being a good thing, is not offered at a low price, so is not 'cheap;' and, therefore, unless the judges entertain 'THE IDEA'—the very essence of the work—the invention is lost to the inventor, and only finds its place when brought out with a flourish of trumpets and in better attire. In hives and bee furniture, therefore, we suggest that the first consideration in respect of anything new should be, What is the idea? And if, on investigation and explanation by the inventor,—for no jury of judges can safely grasp a new invention without such explanation,—it is thought noteworthy, all other considerations should be thrown to the winds and the inventor should have due prominence; after considerations notwithstanding. Gilt tinsel and varnish should be looked upon with suspicion, they appeal to the eye and not to the understanding. Simplicity should be well considered. Everything purporting to be 'for the convenience of the bees' should also be 'well considered,' for ninety-nine times out of a hundred they are foreign to the bees' instincts, and utterly valueless.

The best test of actual value is practical demonstration, and it would be a good rule if professional hive-makers were obliged to produce their hives in working order, that the judges might see whose was most easily manipulated.

Supers, next to hives, are of great importance; their name is 'Legion,' but only one class is really worthy of observation, viz., those called 'sectionals,' and consideration should be given to them so long as honeycomb in a saleable form is the object. Cheapness is generally a criterion in this respect, and unprincipled manufacturers sometimes quote lower prices than they can sell them at, and thus obtain prizes and a name, but do not supply the goods which gave them prominence, and this should be considered.

Prizes are sometimes offered 'for any new invention calculated in the opinion of the judges to advance the culture of bees.' Now such an exhibit would require an immediate verdict, yet we have known a jury of judges to pause, and say 'Yes, it's very nice in theory, but we will wait until it is tested,' thereby stultifying the whole proceeding, for their verdict proved that they had no opinion of their own, and had they given an adverse verdict after-proofs might have shown the absurdity. In such cases judges should exercise great consideration. In regard to honey exhibits, the points required are pretty generally understood, but there are a few points which ought not to be overlooked. Honey is honey, whether pale or dark, or anything between, and we cannot understand why when a prize is offered for the largest or best exhibit of honey colour should have anything to do with it.

A cottager or amateur might live in a neighbourhood where pale honey was impossible, yet he might be an acute bee master, but cut out of all prospect of a prize because of his surroundings.

Much more might be said, but we did not propose to exhaust the subject, and therefore leave it to the consideration of the bee world, our observations being freely given for what they are worth.

FORTHCOMING SHOWS.

Bee-keepers will view with satisfaction the annual increase in the number and the improved character of the shows advertised to take place in connexion with the various agricultural and horticultural exhibitions that are held throughout the country. Ealing and Woodford are of the past, and the great Caledonian is now taking place at Dumfries, and will terminate on the 2nd inst., we hope with increased glory and most satisfactory results in every respect. That advertised to take place at Ludlow on the 24th, 25th, and 26th ult. fell through through the ignorance of certain gentlemen of bucolic mind, who could not, or would not, believe that their cattle and horses would be safe from the stings of the bees, though scores of similar shows to that proposed have been held in perfect safety; and at the great show in Edinburgh, where for three days operations were continually going on, and the bees were flying by tens of thousands close to the immense horse ring where all the horse trials were taking place in the presence of thousands of visitors, not a single sting was received outside the bee enclosure. Such facts ought to be sufficient proof that exhibitions of bee manipulation can be carried on with safety in competent hands; and we think it almost a sin that so grand an opportunity of doing good should have been quashed on such absurd grounds.

Next in order comes the grand show of the British Bee-keepers' Association at the Royal Horticultural Gardens, South Kensington, which will take place on the 6th, 7th, and 8th inst.; and when we state that up to July 26 upwards of sixty exhibitors had entered the lists, representing probably over 300 exhibits, some idea

may be formed of the splendid prospect in view, requiring only fine weather to ensure the most splendid success. The donations in aid of the Association and its objects are beginning to wear a pleasing aspect, thanks to the liberality of the lady President and the energetic hon. sec.; and we sincerely trust that their example will prove the interest taken in the endeavour to promote 'humanity to the bees,' and cause a great influx of donors, subscribers, and members. The present number of members of the Association is about 160, of which the subscribers of 20*s.* are eligible for election on the Committee, and all others have a vote in such election for every five shillings subscribed. A tent has been provided, which we are informed is somewhat in the form of a circus, the manipulations being in a central ring of twenty feet diameter, and the visitors in a promenade of six feet width all round them. Whose arrangement it is we know not; but doubtless everything possible will be done to ensure the comfort of visitors and the carrying out of the object in view.

Following hard upon the British comes the show of the Lincolnshire Bee-keepers' Association, which will take place at Stamford on August 13; and this, like its immediate predecessor, claims especial notice from the fact of its being the first and chief English county show, and for the excellent example shown by its plucky, yet prudent, executive, who, by great liberality, coupled with what is of vast importance in County Associations, viz. a determination to change the locale of their exhibition, have won for it a name and reputation that will *live* in the annals of apiculture. Last year, in the absence of a show by the British, the Lincolnshire took the highest position and became the test show of England, and now it is only second in rank, whether the test be the amount of prizes offered, or the value of the results obtained. Lincolnshire was the first to establish a honey fair on such a basis as to warrant a repetition of it, and we trust it will this year be equally successful. It is a noticeable feature that its shows are not held in conjunction with any other great event, but are considered of so important a character as to stand alone, and hitherto they have been eminently successful.

On the 14th and 15th inst., Shropshire will again take the field, and will, doubtless, attract a large number of exhibitors, the prizes offered being exceedingly liberal. There will be exhibitions of bee manipulation as usual, though the fact is not stated in the advertisement in *Bee Journal*.

On the 21st, the Westbury-on-Trym Association will hold their annual show, particulars of which may be obtained of Mr. J. B. C. Burroughs of that town, near Bristol.

On the 22nd, the Dorset County Association will hold their annual and important exhibition in connexion with the annual exhibition of the Dorset County Horticultural Society's Show, and judging from the interest exhibited at former shows, great results may safely be anticipated.

The Devon and Exeter Association will hold their exhibition on the 23rd, notice of which will be found in our columns; and on the 30th and 31st there will be shows at Arbroath and Blairgowrie, Scotland, each extending over both days, the former of which, it is enough to say, will be under the able direction of Mr. W. Raitt, of Liff by Dundee, and the latter of Mr. Jas. Rogerson, of Blairgowrie. We have dwelt more at length on the shows most nearly approaching than on those for which there is ample time to make full inquiries; and we most sincerely hope that each will be largely patronized: the season has been a most prolific one for honey, and the exhibits ought to prove to the world that bee-keeping, properly conducted, is a profitable as well as a pleasurable pursuit.

COMING SHOWS, 1878.

July 30, 31, and Aug. 1 and 2. Caledonian Apiarian Society, Dumfries; Mr. R. J. Bennett, Sec., 50 Gordon Street, Glasgow.

Aug. 6, 7, 8. British Bee-keepers' Association, Royal Horticultural Society's Gardens, South Kensington; Hon. Sec., Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead.

Aug. 13. Lincolnshire Bee-keepers' Association, at Stamford; Mr. R. R. Godfrey, Hon. Sec., Grantham.

Aug. 14, 15. Shropshire; Rev. the Hon. C. P. Fielding, Hon. Sec.

Aug. 21. Westbury-on-Trym; Mr. J. B. C. Burroughs, Hon. Sec., Westbury-on-Trym.

Aug. 22. Dorset County Bee-keepers' Association Show at Dorchester; Hon. Sec., Mr. Charles E. Norton, Shaftesbury.

Aug. 23. Devon and Exeter Association Show; Mr. W. N. Griffin, Rock House, Alphington, Exeter, Hon. Sec.

Aug. 30, 31. Arbroath, Mr. William Raitt, Hon. Sec., Liff by Dundee.

Aug. 30, 31. Blairgowrie District Bee-keepers' Society, Town Hall, Blairgowrie; Mr. James Rogerson, Sec., Blairgowrie.

Sept. 5. Campden; Rev. R. F. Watson, Chipping Campden, Gloucestershire, Hon. Sec.

Sept. 5, 6, 7. East of Scotland; Mr. William Raitt, Hon. Sec., Liff by Dundee.

Sept. 12. Caledonian Apiarian and Entomological Society, Glasgow; Mr. R. J. Bennett, Sec., Glasgow.

Sept. 14. Stirling, at Corn Exchange; Mr. W. J. Clarke, 4 King Street, Stirling, Hon. Sec.

Sept. 14. East of Scotland Bee-keepers' Society. Banchory, at Town-hall; Mr. J. D. Ker, Douglasfield, Dundee, and Mr. R. M'Gregor, Inchmarlo, Banchory, Vice-President, who will act as Hon. Sec.

Sept. 24. Moreton-in-Marsh; Rev. J. W. Clarke, Hon. Sec., Moreton-in-Marsh.

Secretaries of coming Shows will greatly oblige by forwarding lists of fixtures. They will be inserted in this column without charge.

Impudent Questions.—To ask an unmarried lady how old she is. To ask a lawyer if he ever told a lie. To ask a doctor how many persons he has killed. To ask a minister whether he ever did anything wrong. To ask a merchant whether he ever cheated a customer. To ask a young lady whether she would like a beau. To ask an editor the name of any of his correspondents.

'Swarming' at an Auction.—Last Thursday week Mr. S. Ryott was engaged in selling a cart at an auction sale he was conducting in the market-place, Newbury, when a swarm of bees, irrespective of the business that was proceeding, and of the group of persons present, quietly settled upon the cart. The auctioneer, equal to the occasion, offered to sell the 'busy bees' with the cart, but we did not learn that this led to any fresh start in the bidding, or lent any increased value to the vehicle. Mr. Soper, however, appeared to profit more by the event than anyone, for he hastily procured a hive, into which the bees were deposited; and the erratic colony, when we last heard, were steadily engaged in improving the shining hour by gathering honey all the day from the opening flowers of his garden on the Newtown Road.

Singular Death of a Woman from the Sting of a Bee.—An extraordinary fatality happened at Stansted on Friday evening, June 28th, to the wife of Thomas Felstead, a labouring man residing near Bentfield Bower. The deceased, who was fifty-two years old, was a weakly person, and of somewhat excitable temperament, and on the evening in question the bees in her garden had been in some way disturbed—either there had been a swarm, or they were being fresh hived; and one settled in her hair, in which it became entangled, and eventually it stung her on the temple. She became greatly alarmed, having, when the bees first came there, been heard to exclaim that she was quite sure they would be the death of her, and a messenger was despatched to Mr. Haynes, surgeon. Without waiting his return, the husband, anxious to secure prompt medical attendance, followed him. Before, however, Mr. Haynes, who naturally concluded there was not any very great danger from such a wound, arrived, the unfortunate woman was dead, and, as we are informed, absolutely cold. The time that elapsed between when she was stung and her decease was only about three quarters of an hour, and Mr. Haynes saw her within a quarter of an hour after she had expired. In his opinion death had really resulted from heart disease, but still brought into unerring operation by so tiny a part of nature's economy as a bee, and the sting was, after all, the moving cause of the melancholy occurrence. The authorities did not consider it necessary to hold an inquest after hearing the statement furnished by Mr. Haynes, who signed a certificate in accordance therewith. The sad and terribly sudden event created, as might be expected, considerable sensation in the village, and there were not a few who at first doubted its accuracy. A case like this is rare in the experience of the medical profession—that death should, under the circumstances, have ensued so quickly, and that, following the collapse, the body should have become, as it were, frigid in so short a space of time.—*Herts Advertiser.*

An ex-editor propounds the following:—What is the difference between a young lady's ear-rings and a man who owes three years for his paper? Answer.—One is in her ears and the other is in arrears. Where can such 'other' people expect to go to?

Bees in a Church.—At Chantry church, near Frome, Somerset, early in July, a swarm of bees took possession of the building, and after a good deal of trouble to eject them, they took refuge in the tower. On Saturday, however, they returned to their former quarters in the edifice, and as this time they refused to accept notice to quit, it was found necessary to dispense with the services on Sunday, a Bath clergyman who was to have officiated having been ordered 'not to come.'

Swarm of Bees in a Fishing Boat.—A few days ago, as a crew of fishermen were about to go out fishing, their boat, *The Seven Sons*, belonging to Mr. George Pym, of Topsham, Devon, was taken possession of by a very large swarm of bees. The fishermen were very much alarmed at seeing their craft, which was quite ready for sea, manned by so strange a crew. The men returned to the shore and made the circumstance known, when it was ascertained that the swarm belonged to Mr. Robert Canterbury, who was very quickly sent for. On his arrival, he made the necessary arrangements for the removal of the intruders, but it was not until late in the evening that the swarm was safely transferred to their old quarters.

BEES IN THE ROOF OF CASTLE-TOWARD.

(From *Dunoon Herald* of 20th July.)

About a fortnight ago a large swarm of bees was observed hovering over the roof of one of the outhouses of Castle-Toward, and on the following days great crowds of bees were seen issuing from and returning to this roof. As no one in the neighbourhood would undertake the task of dislodging them, application was made to the Rev. Mr. Irving, Inellan, who offered to take them out alive. Thursday of last week was fixed for making the assault. Armed with a lighted pipe of tobacco, the operator ascended to the roof by a very rickety ladder, and took his observation of the enemies' position. Bees were observed entering and coming out of half-a-dozen places beneath the slates on two sides of the diamond-shaped roof. Perceiving that the work would be attended with some difficulty, the gardener and his assistants were despatched to the farm for a better ladder. The assailant then proceeded to storm the bees on one side of the roof. A plentiful cloud of smoke was blown into one of the apertures, under cover of which several slates were torn up, after which some rotten sarking, when two beautiful combs filled with honey were revealed. But the bees, infuriated by this evident attack on their stores, sent out a strong body of skirmishers, and the assailant was forced to flee. It being impossible to descend by the short rickety ladder, he had to take refuge in a corner of the roof, and crouching down under cover of the stone balustrade, he endeavoured to defend himself in a cloud of smoke, escaping finally with one wound in the eye.

A good ladder having been obtained, and also the services of a joiner (a son of Mr. David Wright, Toward), the party proceeded more cautiously to the attack. It was evident that one or more swarms of bees had established themselves in the roof for years, and that there would be some difficulty in dislodging them. Accordingly the attacking party proceeded to lay regular siege to the enemy by advancing their works step by step. A scaffolding was erected within the building from which the ceiling could be reached, and holes were pierced through the plaster and lath in several places, into which a whole pipeful of tobacco-smoke was driven, after which, leaving the gardener and his assistant to keep up a constant, well-directed fire of smoke, Mr. Irving and David Wright, protecting their faces and necks with muslin

veils, ascended, and tore up the slates and sarking on one side of the roof, when combs packed close with bees were laid bare, extending about six feet down between the rafter couples. As the bees were entering beneath the slates at several places on one of the other sides of the roof, they next proceeded to remove the slates and sarking from that side, when two other hives, equally well stocked, were discovered. Covering two of these hives with cloths, the storming force, under cover of a redoubled volley of smoke directed against the third hive, proceeded to remove the combs, cutting them out comb by comb. The bees were brushed off with a twig into a box, and the combs piled up in a large basket.

After all the combs had been removed in this way, both operaters having received several wounds in the hands in the operation, the remaining bees were collected in spoons and placed in the box, after which box and basket were carried down to the grass. The pure honey-combs were separated from those in which brood was mixed with honey, and these former being sent into the Castle were found to weigh 33lbs., whilst the weight of honey and brood remaining must have been at least as great, if not more. The best of the brood combs were then tied into a bar-frame hive which Mr. Irving had brought with him, and the bees having been shaken out on a sheet, the queen was soon discovered and captured, and having been introduced into the hive the remainder of the bees were shaken in and the hive despatched to the apiary. The attack was then resumed in a similar manner on the two remaining hives, whilst two wasps' nests were found and destroyed in other parts of the roof. At the close of the campaign it was discovered that above 80lbs. of good honey-comb had been secured, and three good stocks of bees, well provided with brood-comb. Mr. Irving carried off two of them to Inellan, where they have been established in bar-frame hives, and by last accounts are doing well.

The following letter from the Rev. Herbert R. Peel has been inserted in the daily papers:

SIR,—May I call attention to the advertisement which appears in your impression of to-day announcing the fourth Metropolitan Show of Bees, Hives, and Honey, to be held in the Gardens of the Royal Horticultural Society, South Kensington, on August 6th, 7th, and 8th? The show is promoted by the British Bee-Keepers' Association, whose object it is to introduce (more especially amongst cottagers and the labouring classes) a more merciful and more profitable system of bee-keeping than that which the majority of them has hitherto practised. Very much has been done by the Association towards this object since its institution in 1874, but very much still remains to be done. The Association is fortunate this year in having for its President the Baroness Burdett-Coutts, who has given a liberal donation to its funds; but the expenses attendant upon the annual show are considerable, and I venture to ask, through your columns, for contributions towards the prize fund from all those who are interested in bee-keeping themselves, or who may wish to promote the interests and pleasures of their poorer neighbours who are bee-keepers. I shall gratefully acknowledge any donations which may be sent to me for 'The Great Bee Show' of 1878.

I am, Sir, your obedient servant,

HERBERT R. PEEL.

Abbot's Hill, Hemel Hempstead, July 27.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

FERTILISATION OF QUEENS IN CONFINEMENT.

If 'what has been done can be done' is true in bee-keeping as in other matters, it will now be as easy to cross various breeds of bees as to cross other live stock; not only so, but in-and-in breeding, and consequent deterioriation of stocks, may be positively prevented by simply bringing captured drones from a distance. An apiary may be Ligurianised, or hybridised, by introducing drones instead of queens. The only apparatus required is a box fixed to the entrance of the hive, with the front covered with perforated zinc of the pattern described in *Journal*, Vol. VI., p. 22, to confine the queens and drones, but permit the exit of the workers. My first idea was to employ a large cage of wire cloth, with spaces left covered with the zinc; but I found that the bees did not find the zinc, but, after trying to get through the wire until tired, clustered in the corners and died. I therefore substituted the box, the only part lighted being the zinc front; this they had no difficulty in getting out of. I was much amused at the ingenuity displayed in getting out dead bees. The worker would push them partly through the zinc, and then get outside and pull them through.

On 29th May, I took three frames of hatching brood and bees, and put them into a small hive. The next day I inserted the two queen-cells which our Editor gave me, at the same time uniting seventeen drones from a hive of my friend Mr. Aldridge, of Newington Butts (these were all we could find, the remainder having been slain during a few days of very cold weather just previous); by freely syruping the drones they were accepted without difficulty. On 7th June one of the queens hatched out. The weather at this time was very cold and unfavourable. On 18th June I found in the box a drone, presenting such an appearance as to lead me to suppose that fertilisation of the queen had taken place. On 21st June I found another drone of similar appearance, but not so marked. About this time a great change was observable in the behaviour of the bees. From having been listless and apathetic they became busy, carried in pollen, and brought out dead bees and chilled brood. On 27th June I found eggs laid; on 6th July the brood was sealed as workers, but with here and there an elongated cell, which I supposed contained drones. On 15th July, finding the brood hatching out, and some of the drone (?) cells empty, I expected to find drones; but after carefully searching, I found none. While searching I saw a bee biting its way out of one of the elongated cells, and to my astonishment it was

a worker. None of the cells have produced drones. In most cases the grubs have been neglected and allowed to die, and in others they have hatched as workers. Your readers will no doubt ask for some proof that the queen had no opportunity of flying. Of course it is difficult to prove a negative; but every precaution was taken, and I am perfectly certain that she did not fly except through the zinc. As she is not by any means a small queen, I think any one seeing her and the zinc will admit that she could not possibly get through. Every examination of the hive was made after sunset, and I know she did not escape on any occasion.

I intend exhibiting the queen and her progeny, together with the hive and box used, and the two drones mentioned above, at the show at Kensington, and shall be happy to give all information in my power to any one whom you may introduce to me there. I am sorry the number of bees will be very small, as the number of nurses became so reduced from the time of the experimental hive being made up, that only a patch of brood about as big as a saucer, has at present been raised by the young queen. But still the fact of her producing worker brood shows the success of the experiment. —'Dr. Pine.'

CHATS ON BEES.—No. III.

By W. Raitt.

July, 1878.

Apiarian. How does this weather please you, John? Your supers will be filling up nicely now.

John. Alas, master! there is many a slip between the cup and the lip. It is easy to reckon up to hundredweights beforehand, but something generally happens to unavoidably alter the reckoning. The fact is, the weather in the latter half of June was too good for my plans. The swarming fever took hold of my best stocks, and for once fairly beat me.

Ap. Then you have broken down on the non-swarming principle?

John. Not exactly. I believe it is the best where large harvests from single stocks are wanted, and these mischievous prizes offered for largest harvests in all our coming shows have set us all on the pursuit of dazzling results. But the experience of the present season convinces me it is a mistake.

Ap. Let me hear how you have come to that conclusion; for, like many others, I was strongly in favour of the non-swarming plan, although now somewhat shaken?

John. Well, I determined to work four of my best stocks on that plan this season. In spite of giving plenty of super room and abundant ventilation, all the four have swarmed. Two of them did not make a second attempt, but the other two were forced out by the great heat in two or three days. One decamped to parts unknown, the other was returned after all the brood-combs but two were taken away, which however was equivalent to taking a swarm from them. They have remained and worked well since; but from the constant watching they require I consider the game not worth the candle.

Ap. Has Highbury swarmed?

John. You mean the long-idea hive; yes, of course. Who could keep bees at home with the thermometer at blood-heat and wax melting in the open air? Why, sir, on some days the air was thick with swarms, and I am told that sixteen at least have gone into the roof of the Castle this season, and ever so many more have gone none knows where. But I am proud of that hive, sir; the body of it has over 3000 cubic inches of space for breeding, and one queen, an imported Ligurian, has kept it full of brood for three summers. Look at it now, with its 2400 cubic inches of super room crammed with bees.

Ap. Is that famous queen still alive?

John. No. And I have a queer tale to tell regarding her end. When the stock swarmed in June the old lady, having ragged wings, was unable to fly, and the bees soon came back. In the evening I removed the supers and looked over the combs for royal cells; I cut out all I could find, and tried to find the queen, but I failed. Resolved, however, to introduce a young one I determined to make a more careful search next day. The difficulty of the operation in such a hive led me, however, to attempt a novel experiment. I happened to have a nucleus with a large and active virgin queen; I took her out, rolled her in honey, and dropped her into Highbury at twelve noon. At one o'clock I found the old queen dead on the floor-board; then, as you may suppose, the swarming fever was completely cured and all has gone well since.

Ap. Capital, John. The principle of introducing a young queen in place of the old one is an important one where swarming is sought to be prevented, and of course has other manifest advantages. But you haven't quite failed, you see, in your attempts to prevent swarms.

John. No. But I am convinced it is a mistake in many cases. As a rule I think that first swarms, if early, should all be taken; then, if spare queens are available, one should be introduced after all the royal cells are cut out. If not, all cells but one should be taken away, and some days afterwards a second overhaul will make sure that no new ones have been built, or any overlooked. In such a case there can be no second swarms.

Ap. I agree with you entirely, especially when one has no objection to increase stock. But what do you make of the supers left unfinished on the hives that swarmed?

John. I wait for a day or two till the swarm has some comb built so as to give the queen plenty of breeding room; then I place the whole, or half, the supers over the swarm. And I am pretty certain that I shall get as much super honey the one way as the other, besides having doubled the number of stocks.

Ap. Whether do you find large or small supers give the best results?

John. In a season like this, with plenty of heat and honey, there seems very little difference. When the increased value of small packages is taken into account, I believe, on the whole, the balance will be in favour of small sections. Highbury to

this date (July 18th) has given me forty-seven finished sections of one pound each, and there are as many more only requiring sealing in a few cells, besides thirty-two partly worked. This alone will make a total of 126 pounds; and should the weather keep good during the lime-blossoming I expect even more. My best stock working in larger boxes will not nearly come up to that.

Ap. How is Peter getting on? Oh! here he comes.

Peter. I don't know what's the matter with my bees. One of them was robbed out clean just last week. The rest will do nothing but hang out and swarm, and I can't get one to go into supers. I believe I shall give it up in disgust.

Ap. Try bar-frames first, Peter. You will then find out what hives are in danger of being robbed —prevent swarming if inclined to, and find it much easier to apply supers to the hives, besides being able to secure any amount of pure honey by the extractor.

John. By the bye, sir, I extracted forty pounds of beautiful honey ten days ago, and I am disgusted to find it all candied already. I had expected to keep some for our show. What can I do with it?

Ap. Eat it, and be thankful you have it to eat after 1877. It is quite an unfounded prejudice that exists against candied honey; almost any honey will quickly candy in such a dry season as this, and the sooner it does so I should say the richer it is.

Peter. I wish I had some to candy, but I suppose I shall have to wait till the brimstone time comes.

Ap. For shame, Peter; you ought almost to be brimstoned yourself. Good bye.

ABSCONDING SWARMS.

On Sunday, 23rd June, between ten and eleven a.m., a top swarm left a bar-frame hive in my garden and clustered on a thorn hedge a few yards from the parent hive. They were safely skepped and placed beside the hive from which they issued, and shaded from the sun with a white cotton sheet. The owner of the hive did not wish a swarm off this one, and I intended to cut out the queen-cells and return it in the evening, and give them another pile of sections.

Between twelve and one p.m. the cry arose, 'Another swarm!' and you may guess my chagrin when I found it was the one I had hived about two hours previous. I thought at first the queen had been lost somehow, and that they would now return to the parent hive. A few seconds, however, dispelled this idea, for they circled once, apparently to collect their stray members, and over the garden wall they flew in a body. Seeing that they meant absconding I lost no time in following.

Straight as an arrow from a bow they made for the chimneys of a row of cottages about half a mile distant. If any of your readers have ever had a run across country with a swarm, over fences and ditches, through potato, turnip, and corn-fields in a temperature of 80° or over, they know what it is. When I arrived on the scene there was a fellow in shirt and trousers, with a skep full of old comb placed on one chimney, and a small opening made into another disused chimney on the same roof, another skep of comb being placed on an empty box at the end of one of the cottages. Before he saw me he exclaimed to some gaping rustics below, 'Here is a fine swarm now!' and almost in the next breath, 'L——, there is a man after them!' I ordered him to close up his skep to keep my swarm out of it. After circling round it for a few minutes they entered the other chimney, and in half-an-hour or so I got them into an old skep and trudged home. On inquiry I learned that this fellow had a few stocks of bees, all of which, except one, died out in the winter time of starvation, and that this stock was so weak it had little chance of swarming this season.

Of course he attempted to insinuate that this swarm was his, but it would not do. Unfortunately for him I was too early on the ground. I also learned that his usual way of replenishing his stocks was to place skeps of old comb in inviting situations to attract and catch any stray swarms. I believe there are characters of this description who cannot, or do not wish to, understand the laws of *meum* and *tuum* in every community. In a radius of three or four miles round here there are a few men who keep bees, and when a stock dies out in the winter time they let it remain on its stand as an inviting trap to catch their neighbours' bees. Some of those men have got their skeps of comb tenanted this year with stray swarms, probably from some cottager or working-man who is obliged to be from home all day, and may not have any one to look after his bees. In the interest of bee-keepers in general, and cottagers and working-men in particular, those who keep bees in an honest way and earn an honest penny by them, I beg to ask you, through your valuable *Journal*, what can be done to put a stop to this nefarious practice of exposing hives of comb to attract swarms? What is the law on this matter? Cannot those fellows be punished either in person or purse?—J. S., *Arbroath*.

BEE-STINGS FOR RHEUMATISM.

The industrious bee, in the exercise of its natural vocation, produces honey, but if we are to believe a fact related by a Prague contemporary, its sting possesses marvellous curative virtues in cases of gout. The *Revue Hebdomadaire d'Agriculture* states that a female inhabitant of Prague had been a martyr to gout for upwards of six months; so tenacious was the malady that the patient could obtain neither repose nor sleep, her right arm being affected to such a degree that she was unable to make the smallest use of it. It came accidentally to the husband's knowledge that a villager suffering from severe rheumatism had been radically cured by the sting of a bee, and the treatment employed by the doctors proving inefficacious, he proposed to his wife that she should make a trial of this remedy. She objected first on the score of the pain that would be occasioned, but was at length prevailed upon to allow three of the insects to be placed upon the arm affected, the bees being kept there a sufficient time to deposit all their venom. The result obtained, says the Prague *Revue*, was little short of

miraculous. The night that succeeded the operation saw the patient enjoying a deep sleep, such as she had not known for months, and the following morning all acute pain had subsided. The arm was naturally much swollen, but the inflammation speedily yielded to the emollient applications used, and within a few days all symptoms of gout had disappeared. The facts of the case are vouched for by the Prague journal, which invites the faculty to put the virtues of the remedy thus successfully employed to the test upon those of their gonty patients who would consent to inoculation by the bee.

IMPORTANT ITEMS.

Kindly give me your advice on the following points:—1. Shall I be able to take a frame of comb, for the sake of the honey, out of my Woodbury hive, and if so, how many might I take with safety to the swarm? 2. Ought they to be taken from any one particular part of the hive; from the centre or from the outside ones, or alternate? I ask you this as I have now five swarms of bees and only one super on! I am going to put my next swarm into an old skep with a hole for super cut in it. I shall put the super on at the same time as I place the hive on its stand.

Will it be too late in the season to drive from an old skep into a Standard hive, or should I let the old skep go on till September, then drive them into it and feed?

I have got all your six Leaflets. I find, on referring, that you partly reply to my first query, but my difficulty is this—if you can use the honey in the frames, what is the use of a super on a bar-frame hive? If you must leave the bar-combs, what good is the bar-frame principle in the hive? I can only understand its use in supers in this case. I shall be obliged by a reply when convenient.—F. H. A.

[Note.—Undoubtedly a frame or two may be taken, but it would be a pity to destroy the comb. Our advice has been and is, when honey is the object in keeping bees, to go through the apiary, 'extract' all that can be conveniently taken, and then feed up with sugar. If only a few pounds of honey are desired, a comb from each side of the hive will furnish them and the empty combs should then be put into the middle of the brood-nest, to give ample room for the bees, for sometimes the latter so overcrowd themselves with honey that a sharp frosty night, happening early, will cause the death of many that have to pass the time between the solid walls of honey. Only the outer combs are likely to contain much honey, the inner will have a good proportion of brood and stored pollen, the latter being only perceptible when held up to the light, and often therefore misleading.

The swarm placed in the hive and supered at once, will take possession of the super, and build and breed therein, and the super, as such, will be thus spoiled; beside which the early labour of the (late) swarm being nullified by the super's removal, the bees left in the skep will probably find great deficiency of winter store; depending, of course, upon the nature of the autumnal honey yield. We are averse to relying on dates, days, or months for any kind of bee operation, and advise that skeps be broken up when the honey season closes—then with condemned bees and spare combs many frames may be filled and much waste prevented.

The last bunch of queries are almost answered in the foregoing. One can take, and we recommend the frequent taking (by extracting) of honey from the body of a hive,—an operation not possible under any other system, but one sufficiently illustrative of the advantages of the bar-frame principle, without taking into account the facilities for manipulation which it affords. Supers are supposed to be filled with virgin comb and honey, without speck or suspicion of the taint of brood, or pollen; these can be better secured on bar-frame hives than otherwise, whereas, as before suggested, frames in the body hive unless protected (*à la* Abbott's new-idea frame) generally contain one or the other, or unmistakable evidence of their having been there.—Ed.

PERFORATED ZINC—MISHAP WITH ADAPTORS.

I wish to relate a mischance which has occurred to me in the use of perforated zinc as a means of excluding the queen and drones from a super. The zinc is a piece of your old pattern, with circular perforations altered by myself to oval. This I placed over the opening at the top of a common straw hive, and the ordinary straw cap above it, furnished with pieces of comb, so as to offer the attraction of partly furnished lodgings. Every evening I raised the edge of the cap, and finding it always full of bees concluded that all was going well. But at the expiration of about ten days, raising the cap as usual I was surprised to find no bees attempting to crawl out. Further examination showed me a thick layer of dead bees in the crown of the hive to the amount of about a pint and a half. It is evident that these bees had mounted into the cap through the perforations in the zinc, no other road being open to them, but that under the persuasion that they could not return through the same perforations they had perished by starvation.

That they could have returned if they had only thought so is proved by the fact that in one of my frame-hives the bees are passing and repassing freely between the main hive and a super, through a piece of zinc of precisely the same perforations. What can have betrayed the bees that perished into their fatal persuasion? The hive is now working well enough; but, though the zinc is removed, the bees steadily refuse to enter the cap.

Will it be of use to mention that I have used Roffia with success for tying transferred combs into the frames? It is abundantly strong, and so broad and soft that it does not cut the combs; and when no longer needed the bees themselves remove it without trouble to their keeper.—A. W. W. D., *July 4th*, 1878.

QUEEN AND DRONE PREVENTERS.

I have just discovered a sad disaster in one of my hives (wooden bar-frame). As there were plenty of bees, and they would not swarm, I put one of Lee's octagon supers on. First they took to it, then they deserted it; then they seemed as if they would swarm, and covered the whole of the front of the hive, and hung on the footboard day and night. This went on so long that a few days ago I again admitted them to the super, and they set to work;

but this afternoon I raised it to see how they were getting on, when, to my horror, I saw one or two hundred dead bees, if not more! I cannot make it out, although I have tried to think of everything. Can you help me? First I thought it was the perforated zinc drone-preventer (I saw a few dead in the super when first I put it on), but although I changed this for one of Neighbour's drone-preventers, the above is the result. The hive is tremendously heavy. What can it be? I got 25 lbs. of honey from one hive in eleven days, and have the same quantity again to take to-morrow—all since June 25th. My neighbours are scarcely doing anything.—R. F. D., *Eccleshall, Staffordshire.*

[We can only imagine that the aperture generally was not large enough to permit of the bees travelling freely both ways, and that in consequence a panic ensued and the heat created caused the bees to be suffocated. A few bees (dead and contracted) stuck fast on a small grating would cause considerable blockage and numerous bees would be very busy trying to carry them down; thus traffic would be impeded, great heat generated, and many deaths the possible result.—Ed.]

UNITING AND HONEY-SPOILING.

A point of some little interest occurred to my bees the other day, which, if you think of sufficient interest you may insert in the *Journal*, as it may act as a warning to others. A swarm in a straw skep lost its queen, and I did not discover the loss till a few days ago, when turning up the hive, I could not find a single cell of sealed brood or egg. Thinking it foolish to attempt to rear a new queen, I decided to unite them to a second skep, which was strong. I smoked them both, and sprinkled them with warm syrup, flavoured with peppermint, when all seemed right, as there was no quarrelling. A few days after I took 14 lbs. in small sections from an artificial swarm about fifteen yards away from the skeps; but imagine my annoyance to find my honey, which was as clear as water, tasting most unmistakably of peppermint, and overpowering the delicate flavour the honey should have had. I should explain that in uniting the two skeps, I placed the strong one on the top of the weak one without a queen.—J. H. Harrison.

BEES MISLED.

I swarmed a straw stock artificially on the morning of the 3rd June, and had given up hopes of them swarming again as I did not hear any 'piping and barking,' also being so long past the time of queens being hatched. When to-day (26th June) a large cast came off, I stood by and saw the queen come out and take wing. I shook them into a skep, and they went in all right; I left them for a short time to gather up, and after I brought them to their stand close by the old stock I saw they were returning by the appearance of the hive front. In a very short time they were all back to it. Can you give me any reason for their doing so? A reply in your *Journal* will oblige.—T. M., *Whithorn, Wigtonshire, June 26th.*

[Note.—The bees were swarmed artificially on 3rd June, and had to commence queen-raising. Thus, before a queen came into life fourteen or fifteen days would probably elapse, and she having slain her rivals (which might have been found outside if sought for) effectually prevented piping, and then it would be necessary for her to take her wedding flight. This we suspect she did on the 26th, deluding the bees into the belief that she intended to lead forth a swarm, a belief which they acted upon, and clustered for her majesty to join them; but she doubtless had soared far away and for the time was lost to them, so they returned, and we hope she has done the same after a successful adventure.—Ed.]

DRONES AND THEIR USES.

I am a constant reader of your *Journal*, and am trying to understand the management of bees under the advanced scientific system at present practised; but I feel that I am far behind the times. Will you kindly say in your next issue, if in time, how far my conduct was consistent under the following circumstances? — On the 3rd June I placed a super upon a strong last-year's swarm, admitting the bees thereto through slits three-sixteenths of an inch wide, hoping to stop swarming and secure honey. The supering seemed to answer both my purposes, but on Saturday last, June 22nd, a swarm weighing 4¼ lbs. came off from the stock. After I had secured the swarms I observed large numbers of drones entering the old hive. I therefore concluded that if these were allowed to exist there they would consume much store, and I therefore took my stand at the back of the hive and, leaning over, I laid hold of the drones one by one, and slaughtered them to the number of 180, the bees taking very little notice of me. I should be glad to know how far I was justified in this massacre. I have a bar-frame hive which, in spite of my supering, sent off a large swarm on June 3rd, weighing 5¼ lbs.; and in this box also there are numerous drones. What ought to be done with them? The bees, with my help, have slaughtered great numbers; but great numbers remain.—G. F. *Oswestry, June 26th.*

[The poor drones are always catching it! In this case they had evidently done no mischief to hive or super; for 'the supering seemed to answer,' and the population had so increased that a swarm of at least 20,000 bees came off from the stock; yet when the poor drones, the regular stay-at-homes, after witnessing the departure of their mother and sisters, were re-entering the hive to fulfil their purpose of maintaining the heat after the swarm had gone, they were massacred by their owner. The massacre, taken from a naturalist's point of view, was most unjustifiable, because at the time the drones were absolutely necessary, and but for them if a cold night ensue after swarming much brood might perish. We know that in the course of nature the drones perish: but even the massacre by the bees depends on the condition of the weather, and sometimes takes place abnormally, *i.e.* before there has been a possibility of their usefulness as fertilisers, for they are often massacred before swarming has taken place. There is doubtless a possibility of a superabundance of drones in a hive, but that state of affairs could be prevented by limiting the quantity of drone-comb in it. Drone traps would not then be wanted until the bees gave the hint for their destruction, when trapping them would save them the labour.—Ed.]

DRONE-TRAP TUNNEL.

I venture to tell you how I used Aston's Drone Trap without interfering with either hive or floor-board. I made a little tunnel to cover the passage between hive and drone trap, which I fastened on the end of the lighting-board by a screw, the tunnel being furnished with small holes that would allow returning workers to pass through. By this means I caught 1600 drones from one hive. The workers require a way to get in without going through the perforated zinc in front of trap, for one reason, they cannot find the way in, and another is, it (the zinc) rubs off their loads as they squeeze through. I am very pleased indeed to hear of your new zinc, as my experience of the round-holed zinc is not satisfactory. My intruding these remarks about drone-traps is caused by reading the Query No. 246 of the June *Journal*.—A. C.

BEES AROUND LIVERPOOL.

Around me (Maghull) nine-tenths of the stocks died, many of them since May came in. My stocks, nine in number, I have brought through, but with an expenditure of over 100 lbs. best loaf sugar, in addition to a lot of barley sugar; two are weak, but the rest are strong; five of the latter in bar-frames. Seeing your article on slinging and doubling in this month's *Journal*, I have tried it on the 3rd inst., but could not sling much, owing to their being brood in every comb. Your estimate of 200 lbs. seems very high; in another week I will see if any are ready for the slinger. I delivered a lecture on bees last March, and with the help of kind friends, we opened a bar-frame in the room, much to the astonishment of some. No one was stung.—J. M. S.

PROLIFIC BEES.

Thinking it might interest some of your readers to know of the great increase of stocks from a last year's swarm. On the 9th of May it swarmed, on the 22nd a cast, on the 24th a coalt; on the 23rd June the swarm threw off a maiden swarm, and on the 6th July the maiden swarm sent out a cast. They all appear strong, but I did not weigh them. I should like to know if it is not unusual; they are in common straw hives.—Thos. Marsh, *Dorking, Surrey*.

[Such swarming is uncommon, but not specially remarkable.—Ed.]

BEES AND HONEY PROSPECTS.

The bee and honey season of this year is now drawing to a close in this part of the country, as far as the harvest of honey is concerned, and according to my idea it is the best I have had for several years. We made a bad beginning, as the principal part of May and the first week in June was very showery and cloudy for several days together; we had scarce a gleam of sunshine, but with the second week in June came the fine weather, and honey in abundance. It is wonderful how quick the little creatures will do their work, if they have but a chance. On the 15th my glasses were empty, comparatively speaking, and on the 30th they were all full and sealed up. I commenced swarming on the 28th of May, and finished on the 18th of June, having twelve swarms in the time, excepting a maiden swarm of Ligurians which came out on the 6th of July. Should be pleased to know the experience of bee-keepers in other parts of the country.—A Mid-Lincolnshire Bee-keeper.

BEES SWARMING AND NOT SWARMING.

In my apiary I had five stocks of bees, four of which I wished to swarm to increase my apiary. I supered one in May, which I considered the best; they commenced to work in the super in the middle of June, but stored only about 4 lbs. of honey. On the 4th of July they threw off a swarm which united with a cast that had just come off, and are doing well. I have to look after another apiary not far from mine, and wished to get a swarm from one of the three stocks there. The bees were very numerous, and hung out for a fortnight or more, and on the 5th of July I gave them a super, which they went into at once and are doing well. The weather has been very hot since. In the same apiary the bees have not swarmed for three years. Can you give any reason for their acting so? Should I have made an artificial swarm? but I wanted a natural, to hive in a Standard hive as the stocks are at present in the Woodbury. Do you think syrup made from raw sugar would be good for bees, as I see when we get a ship in for orders with sugar, or has had in a cargo, the bees flock on board in large numbers.—H. C., *Salcombe, Devon*.

[It is difficult to give a special reason for bees not swarming when probabilities are so many and varied. The state of the weather, and the consequent variations in the honey yield after they swarmed, may have caused an excess of drone-comb in their hive, which would entail the rearing of drones instead of workers; or the weather at each succeeding swarming season may have been unfavourable, and they may have been prevented thereby. The queens may not be sufficiently prolific; or they may, having been weak from commencement, not have had the means of becoming sufficiently strong and vigorous to swarm, and until this splendid season have had no chance of gathering the wherewithal to store in a super. Raw sugar often contains the elements of fermentation, and cannot be recommended for bees besides, best white sugar is cheaper in the long run, which you may prove if you will try both.—Ed.]

BEE REMINISCENCES IN SCOTLAND.

As Vice-Chairman of the Stirling Horticultural Association—a thriving institution—I am glad to say, in connexion with our annual show this year, we hope to hold an apiarian exhibition, as you will note from prospectus, which I hope you will kindly take notice of in your *Journal*.

I have had to do with bees from my earliest recollection, and can remember the great event of starting for the heather or moors: the good old style—the bee-barrow, seven or eight skeps, and a start in the gloaming. A relay of carriers, and away ten or twelve miles; hot work. Some accidents occurred, no doubt; and I guess the 'dram or the speerits' did not improve the steady swing. These days are nearly done. The spring van or

the iron horse runs close to many a moor; but, notwithstanding, we do not get the weights we used to get twenty years ago, or even thirty years ago; skeps it took a good man to lift off the pins, sixty or eighty pounds, or better; now such are of the past. The seasons with us for some years have been killing, many dying at the moor, and hardly brought through with nursing. The stocks of bees were never lower than at present, and, to speak of myself, I am bee-less. This is depressing as the old omen of something serious going to happen; I hope not. I have had bees in wood, in straw, in a bee-house, and exposed. I can drive easily, but never tried the forced hiving, and last year I was down to two stocks. I did the best I could for them, feeding, &c., and, strange to say, both have come to grief, and dwindled away even with plenty of food in the skeps. I suspect the queen came to grief. I have some doubts about bee-houses being the correct thing. I have one with doors behind and shelves, which you can get into and look at or feed, or sit and listen to the happy hum of the bees coming in on a quiet evening, or hear the queen sounding to get ready for a swarm. This is all correct, but I fear the bee-house does not suit the queen in her trip. If she comes out and takes her aerial trip and returns, it is very likely she may mistake the door; and if so, I expect being a queen will not save her. The old plan of standing separate with straw hoodings was more natural, and, I suspect, suited the queen better on her return from her marriage jaunt. Perhaps you can say as to this. My skeps were kept dry and clean; all bee grubs were looked after; and really and truly the bees behaved badly to die. I daresay they could not help it. I had a Ligurian swarm some years ago. It did well, but being beside the old sort, eventually lost its individuality, or got crossed. If I take to bees again, I shall stick to one sort or the other, and I question if the Ligurians are much better than the old Scotch bee. It is the old story—Give us weather; or, as the old woman in *Punch* says, 'Receipts for cookery, my lady? yes, very good. But it is the ingrediments that is best.'

I was glad to hear a humming in my garden last night, on the blossoms of the laburnum tree; and the yellow mustard is appearing in the fields.—R. S. Shearer, *Benview, June*, 1878.

Echoes from the Hives.

Liff, by Dundee, 24th June.—'Never saw a finer honey season than during the last ten days. I have some of the finest supers I ever saw all but finished. I find Novice's 1 lb. sections the very thing—not a bit too small when forty or sixty of them are hung in a top story.'—William Raitt.

Struan, July 19th, 1878.—'We have had nothing like this weather in the north of Scotland for the last ten years or so. Honey coming in by hundredweights; never saw it so plentiful in this quarter. They have begun to fill supers three weeks sooner than ever I saw them before, and seems to promise a good year.'—Struan.

Evesham, July 23, 1878.—'I am exceedingly pleased with your extractor, "The Little Wonder," which I received from you about ten days ago. It works admirably, and I have no hesitation in strongly recommending it to any of your numerous friends who do not happen to possess one. In short, no one who has bar-frame hives should fail to have it. My bees have done very well during the last month and have gathered a quantity of honey, and are filling the sectional supers—which are all that could be desired—which I obtained from you.'—A. H. Martin.

Arbroath, N.B., July 25, 1878.—'I have sold vols. 1 and 2, *B.B.J.* at the advertised price (viz. 5*s*). Rather a good speculation, wasn't it? Sterling proof that the *B.B.J.* is an invaluable authority, and that its editor has reason to be proud of his labours, whether remunerative or not.'—J. S.

Tamworth.—Fertilisation of Fruit Blossoms.—'My experience exactly coincides with yours with regard to the fertilization of blossoms of fruit trees, including plums and cherries, this spring, and ditto with peas, beans and tares. Indeed, small and large farmers—ditto market gardeners—are great losers by not keeping bees.'—John Drage.

Grampian Hills.—'What glorious weather for bees we are having in this quarter this season! With the exception of occasional days it has been honey-gathering weather since the second week of June, and it has every appearance of continuing, unless this extra high temperature—ranging from 75 deg. to 80 deg. in the shade—will bring on a thunderstorm that may finish the season abruptly. Those who attended to their bees last year and fed them timeously and judiciously are reaping a golden harvest now in piles upon piles of supers. In a drive yesterday across the low range of the Grampians, about thirty miles north from here, I wished I had a few hundreds of hives along the hill-sides. What a paradise for bees in right weather! In the valleys the fields are one mass of white clover, hedgerows filled with sweet briar and the wild rose, the roadsides and the banks of the streams and rivulets glowing with every hue of the rainbow in innumerable little flowers. On the hill-sides the wild thyme is a carpet of purple, and nearly all 'wasting their fragrance on the desert air.' I did not see fifty hives in a circle of fifty miles. The place for bees is on the verge between the high and low lands, just a little into one of those valleys I refer to. I hope you are having as fine weather in the south, so that you may get hundredweights of supers for the shows.'—J.S.

Ealing.—'And yet I must say that I was very sorry not to have been able to see the manipulation at our Horticultural Society at Ealing; and that a gentleman who has long wished that every bee-keeper in Middlesex could be compelled to destroy his bees and then be hanged to prevent his getting any more, was persuaded to go and see them, and was *more* than astonished. From him it is very extravagant praise that it has compelled him to forgive the infatuation of bee-keepers, though he has not yet brought himself to take a genuine swarm into his own bosom.'—W. H. H.

'I enclose you P.O.O. for the Little Wonder, with which I need scarcely say I am very pleased. I am astonished to find that though it slings out every drop of honey, it has very little effect on the unsealed brood. I am half inclined to champion the cause of the old black bees. The Ligurians have the credit of not stinging so readily as the blacks, but my experience has been the reverse. My bees are pure Ligurians, and the only difference I have been able to discover in them is that they do not follow one about so persistently as do the blacks, but the latter make a great to-do before they sting, and so one can guard better against them than against the former, who will sting even the hands, which the blacks I find seldom do. In lifting out a frame I have frequently pinched (by accident) the leg of a black bee between my finger and the wood, but have been warned in time to release her, whereas the warning and the wound are given simultaneously in the case of a Ligurian.

'Will you be good enough to let me know if there be any means of preserving a queen through the winter in order to unite her to a swarm in the spring? I am going to join two swarms this autumn, and do not wish to kill a Ligurian queen who lately cost me 10*s*. Will caging do between two honeycombs?

'Will you also kindly tell me how many Woodbury frames of sealed honeycomb you consider necessary to winter a hive?'—H. M. W.

[Note.—The opinions, first as to Slinger and its effect on the unsealed brood, then as to the respective gentle qualities of the bees, are not universally shared, because, as a matter of fact, the results which give tone to the opinions depend so much upon the individual observer. One will make the Little Wonder perform near 300 revolutions per minute, a speed which will 'persuade' every particle of unsealed brood to quit the cells, while another will, perhaps, not attain a third of the speed, yet will be able to extract the honey nicely.

As to the bees:—well! opinions differ, but we must prefer the Ligurians. More than half the irritability of bees is caused by ill-constructed hives in which they are placed, which cannot be opened without violent wrenching, and the crushing of many of them.

There is no known method of preserving queens through the winter, except in separate stocks; small they may be, but they must be capable of keeping up warmth, or it must be artificially applied. Some profess to keep them in small nuclei packed together, yet each having a separate entrance; but we prefer to sell surplus queens in autumn, or buy cheap stocks and insert them, so that they may grow into saleable swarms in the spring. Bees will winter in four frames of Woodbury size, if properly packed, and in good condition, but we prefer to let them have eight at the least, so that they may not require too early disturbance in the spring.—Ed.]

Queries and Replies.

Query, No. 264.—The bees in one of my frame hives appear rather weak and evidently will not be able to fill it during the season. Will it be advisable to add to them the bees of one of my old stocks which are in a straw skep, and from which I want to take the honey? How could the bees be transferred? The two stocks of bees are, at present, some thirty or forty feet from each other. How could they be joined together without numbers losing themselves when their old home is taken away?—O. C. D., *Leighton Buzzard.*

Reply to Query No. 264.—You have proposed the very best course that can be adopted. Bring the two hives nearer together by day, a short distance every day until nearly close. Drive out all the bees from the skep and leave them on their stand, while cutting out all the combs and fitting such spare and brood comb as is worth the transfer into frames from the other hive, then unite in the usual way, see 'Uniting.'—Ed.

Query No. 265.—*Preparing for next year.*—I have several old-fashioned straw hives with, say about an average of 30 lbs. of honey in each; if I were to place these on the top of some of your bar-framed hives, the bees would do something for me this year, and I could drive them back for the winter, and then hive next year's swarm in your hives?—J. C. W.

Reply to Query No. 265.—The plan will succeed if you allow the brood in the lower hives to hatch before driving the bees back, and care must be taken to protect the new combs from wax-moth.—Ed.

Query No. 266.—I find on looking at the hives, that in one the bees have built their combs between the bars, and in all shapes. Can I do anything with it? This is owing to me having one of a London firm when I commenced bee-keeping, and, not knowing anything about guide-combs, the bees were put in as I received it?—A. G., *Sheffield.*

Reply to Query No. 266.—There is no remedy but lifting all out bodily and transferring. All frames sold during the past three years should have had guides in them.—Ed.

Query No. 267.—I have a large box of bees standing in an old bee-house by itself, which I want to drive (it is very heavy), and as there is not another hive in the house that I can unite it with, what can you advise me to do? Will it do to put it into an empty box or hive, and feed them, and in the winter move them into another house, as I want to do away with that they are now in? They have neither swarmed nor worked in supers, therefore I should like to have the honey?—T. G.

Reply to Query No. 267.—Get a cheap bar-frame hive, one at 4*s.* 6*d.* will do well for the purpose. Drive all the bees from the old box into another, cut out the combs, and fit such of them as contain brood into the frames of the new hive, tying them in with tape; suspend them in the new hive, and give the bees access to them, and cover them up. The honeycomb should then be 'slung,' or if a slinger be not at hand, they should be drained, not crushed, and afterwards other frames should be filled with them. It is immaterial how many pieces of comb be put together to fill a frame, provided they are held securely in position until the bees have time to fix them. See also reply to 'Horsfield Road.'—Ed.

Query No. 268.—*Drone Slaying.*—I have a stock of bees that I feared was queenless; being in a straw skep, and in a greenhouse, it is rather bad to examine it. I saw on the 25th of July they had commenced to kill their drones, would that be an indication that the queen was all right?

Uniting Stocks.—Kindly inform me how to unite two stocks of bees. I can get bees from persons that are in the habit of burning every year, and I intend taking the bees and spare comb with brood, to fit up a box for observatory hives for next summer?—W. L.

Reply to Query No. 268.—Queenless stocks do not as a rule kill their drones, but they will under pressure of approaching starvation turn out both their drone and worker larvæ, when such exist. We should, in such a season as the present, accept the slaughter of drones as an index of the safety of the queen.

Uniting is very simple. Drive all the bees from both hives, and mix them together after well sprinkling them with scented syrup. Arrange the combs, whether transferred or otherwise, as they are to remain. Sprinkle them also, and allow the united bees to run in. The operation should be performed in the evening, and it is even better if the bees find their newly-arranged home a refuge from out-of-door darkness.—Ed.

Query No. 269.—*Quilt, Straightening Comb, &c.*—Through your very useful paper (if not too late) may I ask in your next issue how the sawdust quilt is made, and how feeding is managed in that and other quilts, as I see so many advocate feeding immediately over the cluster, wherever that may be? Also, may I ask, how you straighten combs, as the new comb is so very tender?—*Farnham.*

Reply to Query No. 269.—The sawdust 'quilt' is simply a bag of sawdust so made as to lie flat like a mattress. It is for winter use, to be put on after all feeding is concluded, or when only barley-sugar feeding should be adopted. It could be made with a feeding-stage sewn or nailed into it, which, if fixed a little way diagonally from the centre, could, by turning it round, be made to come sufficiently near the cluster, be it where it may in the hive. We do not recommend the attempt to straighten new combs. If a blunder has been made in not providing proper guides, it is better to wait until the comb gets older and tougher than to try to manipulate what will not bear touching. We sometimes take away new combs that have not been built aright, and give old in their place, and then splice the new into other old combs, or use it up in supers. In these days of guides, now so well understood crooked combs, except from accidental falling, ought to be well-nigh impossible.—Ed.

Query No. 270.—Could I not get my bees out of straw skeps in the autumn by fumigation instead of driving? I want to put them into bar-frame hives when the honey season is over. What do you use for fumigation? and what is the effect on the bees? If you prefer to answer in your next *Journal* it will be in time for me.—S. P., *Sunny Bank, Burgess Hill.*

Reply to Query No. 270.—Bees may be transferred in autumn; in fact, it is the principle we recommend, as then there can be a grand setting-to-rights of the apiary. As to the means by which the bees are taken from the combs, 'driving' is the best; but, if objectionable, the fumes of puff-ball may be used. Some recommend chloroform, but it is so uncertain in its action that we think it better to avoid it. The effect of fumigation is that all the bees become stupified and for the time being apparently dead.—Ed.

Query No. 271.—*Crooked Combs.*—About a month ago I hived a strong swarm in a bar-frame hive, with a plain wax-guide to each frame. I fed them for the first few days, and all seemed right; but I have not been able to look after them since then, and I now find that they have fastened the frames together and to the sides of the hive with small pieces of comb, so that I cannot lift a frame out without lifting most of the others and breaking the pieces of comb. I have put on a super, to which they have taken.—Your kind advice will greatly oblige.—W. H. M.

Reply to Query No. 271.—We would allow the bees to do their best in the super, and afterwards, when the combs are tougher, would lift them out bodily and straighten them, putting each separately into its frame, and tying it with tape until the bees had fixed it securely. Slight attachments uniting frame to frame, or comb to comb, are seldom regarded in manipulating, as they are easily cut through; and if the combs are fairly straight in the frames such need scarcely be noticed.—Ed.

NOTICE.

'*Our Journal*,' as it is often so lovingly termed, was established for the especial benefit of bee-keepers, and bee-keeping generally; and, as we understand it, should not be classed with ordinary monthly periodicals, the matter of which has been cut and dried for some weeks beforehand. Last month we published a report of a meeting of the British Bee-keepers' Association, which did not reach us until mid-day on the 28th of June, and Sunday was the 30th: and this month we hope to give at least a *résumé* of what will take place at a meeting to be held to-night, the 29th of July, and which may possibly have an important bearing on the coming show.* It is not to suit *our* pleasure or convenience that the *Journal* is not delivered promptly on the first (or last) day of each month, but it arises generally from dilatoriness in others, or from meetings taking place so late in the month, and, through our anxiety to keep our readers fully 'posted' with the latest intelligence. We beg pardon of those to whom the delay is irritating, and hope our contributors will help us to prevent future delays. If the relations of the *Journal* to Associations were duly considered, it would be easy to call meetings in time for their reports to appear in next issue, and shows could as a rule be similarly arranged and dealt with.—*Verbum sap.*—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Slinging.—*Turnham Green.*—When honey is coming on freely the slinger may be used out-of-doors with impunity; but on the slightest lull all extracting should take place within doors. A very gentle motion will cause liquid honey to leave the cells, and rapid motion should only be indulged in when the combs contain no brood, or the latter, if unsealed, will certainly be thrown out. We shake off all the bees we can, and then brush off the remainder with a bunch of grass or a sprig or two from anything growing near. Brushes and feathers are peculiarly annoying to bees.

Ballinasloe, Ireland.—*Foul Brood.*—The bees should have been put into quarantine for two or three days, until the infected honey in their stomachs had turned into wax or become otherwise consumed, and then they could have been put into fresh combs with impunity. If not a large body of bees, it is probable that the whole of the honey carried by them will have been consumed, in which case the omission of quarantine, they having been put into an empty hive, will matter little. It is when bees have the opportunity of *depositing* infected honey in the cells in their new abode that there is danger in omitting the quarantine.

Horsfield Road.—The end of the honey season is an excellent time for breaking up stocks and transferring the bees to bar-frame hives, as condemned bees and spare combs may then be readily obtained to help fill up and strengthen them. They should be fed to a weight of about 30 lbs. by the middle of October, feeding gently and continuously. The stock which took possession of a 'large glass super,' and then 'all died,' must have become suffocated through some inadvertence.

Micheldever.—To drive smoke into the top of a hive it is necessary to prise up the crown-board when such an abomination is used, and blow it into the crevice. When quilts are used it is only necessary to peel them off gently and blow the smoke on to and between the frames, when the whole upper surface of the hive will be exposed, quite clear of bees.

British Bee-keepers' Association.—The show, as originally advertised in these pages, will take place at South Kensington on the 6th, 7th, and 8th inst. Goods sent by railway must reach the show in the grounds of the Royal Horticultural Society on Saturday the 3rd, or Monday the 5th inst. Goods taken by hand can be delivered personally at the Park Lane entrance to the South Kensington Gardens, on the west side of the Albert Hall, up to ten o'clock on Tuesday morning, the first day of the show.

G. H.—*Cyprus.*—It is quite possible that apiarians from their standpoint may have an indirect interest in the Anglo-Turkish Convention of June 4. The virtues of the Cyprian bee have been frequently and loudly sounded in our ears: and many have been the endeavours to get it acclimatised both in this country and in the United States. The inquiries of Dr. Parmly (see p. 166, Vol. V.) as to whether the Cyprian bee is bred by any one in England, and who are the most reliable breeders, would incline us to the belief that the American bee-masters have not been successful in introducing it into America; and we are not aware that the attempts that have been made in this country by Messrs. Neighbour, O. Poole, and others, have met with better success. Doubtless many excursionists will find their way to this new acquisition of Great Britain; and possibly there may be among the number some enterprising and intelligent apiarians, who may take an interest in bringing it to England. We would fain hope that by their instrumentality some Cyprian queens may be brought over here, and their virtues tested; and possibly the day is not far distant when Cyprian bees may be as common with us as Ligurian. Might we suggest that the British Bee-keepers' Association should take action in the introduction of the Cyprian bees, and offer a medal, or some encouragement, to the successful importer?

* Up to our going to press this has not come to hand.—Ed.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

Instituted October 1875. President—The Right Rev. Bishop Suffragan of Nottingham.

THE Association will hold their THIRD GREAT ANNUAL EXHIBITION of HONEY, BEES, HIVES, &c., and Practical Apiarian Manipulations, at STAMFORD, on Tuesday, Aug. 13, 1878.

SCHEDULE OF PRIZES.

Class

BEES.

1. For the best Stock, or Specimen of Ligurian Bees, to be exhibited with the Queen in an Observatory Hive ... ... 20/0, 10/0, and 5/0
2. For the best Stock, or Specimen of English Bees, to be exhibited with the Queen in an Observatory Hive ... ... 10/0, 7/6, and 5/0
3. For the best Stock, or Specimen of any species or distinct variety of Honey Bees, other than Ligurians, or the British Black Bees ... ... 20/0, 10/0, and 5/0

HONEY.

4. For the largest and best Supers of Honey, the produce of one Hive ... ... 20/0, 15/0, 10/0, and 7/6
5. For the best Glass Super, over 30lbs. nett weight ... ... 20/0, 15/0, and 10/0
6. For the best Glass Super, under 30lbs. nett weight ... ... 15/, 10/0, 7/6, 5/0, and 2/6

SPECIAL PRIZE.—Presented by C. N. ABBOTT, Esq., Fairlawn, Southall. A COMPLETE BAR-FRAME HIVE for the best and largest Super of Honey exhibited in Class 4, 5, or 6, by a Cottager, *who shall be a Member of the Association.*

7. For best Wood, or Wood in combination with either Glass or Straw, Super of Honey 15/0, 10/0, 7/6, 5/0 and 2/6
8. For the best exhibition of Honey in Supers, or Sections of Supers, separable, and each not more than 2lbs. in weight, the total weight of each entry to be not less than 10lbs. 10/0, 7/6, 5/0, and 2/6
9. For the best Straw Super ... ... 10/0, 7/6, 5/0, and 2/6
10. For the best Glass of Extracted or Run Honey, of not less than 5lbs. nett weight; quality to be the chief point of excellence ... ... 10/0, 7/6, 5/0, and 2/6
11. For best and largest exhibition of Extracted or Run Honey, in Glass or other Jars 20/0, 15/0, 12/6, 10/0, 7/6, and 5/0

SPECIAL PRIZE.—Presented by Mr. R. R. GODFREY, Grantham. Current Vol. of B. B. JOURNAL for the best exhibit in Class 9 or 10, by a Cottager, *who shall be a Member of the Association.*

SILVER CUP.—THE SILVER CUP OF THE ASSOCIATION, open to Members only, for the best and largest exhibition, in all or any of the Honey Classes, of Honey taken without destroying the Bees. The Cup to become the property of the Member who shall Win it THREE TIMES.

12. For the finest sample of pure Bees' Wax, in cakes of not less than 2lbs. ... ... 5/0 and 2/6
13. For the best Liqueur, Wine, or Mead made from Honey, with the recipe attached ... ... 15/0, 10/0, and 5/0

All Honey must be the bonâ fide property of the Exhibitor, gathered by his or her Bees in the natural way this year (see Rules).

HIVES.

14. For the best Hive for observation purposes ... ... 20/0 and 10/0
15. For the best Complete Hive, on the Moveable Comb principle ... ... 20/0, 10/0, and 5/0
16. For the best and cheapest Complete Hive, on the Moveable Comb principle ... ... 15/0, 10/0, 7/6, and 5/0
17. For the best and cheapest Straw Skep of any description ... ... 7/6, 5/0, and 2/6
18. For the best and cheapest Supers for general use in an Apiary ... ... 10/0, 5/0, and 2/6
19. For the best Honey Extractor. Portability and cheapness to be considered ... ... 20/0, 10/0, and 5/0
20. For the best and most Complete Collection of Hives, Bee Furniture, and Apiculturist's necessaries 30/0, 20/0, and 10/0

Exhibitors must guarantee to supply any number of Hives, &c., at the prices quoted.

21. For the best and most interesting Collection of Natural Objects, Models, or Diagrams, connected with Apiculture, and illustrating the Natural History and Economy of the Honey Bee ... 20/0, 15/0, and 10/0
22. For the best and largest Display of Honey Producing Plants, in a dried state or otherwise, such Plants to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to Bee-keepers. 1st Prize, *Langstroth on Bees.* 2nd Prize, *The Gardener.* 3rd Prize, Current Vol. of *B. B. Journal.*

RULES.—Every intending Exhibitor must send his Name and Address, enclosing Entrance Fee to the Hon Secretary before August 1st, 1878.

Entrance Fees.—For any number of Exhibits in either of Classes Nos. 1, 2, 3, 13, 14, 15, 16, 18, 19, 20, 21, and 22, Two Shillings for each Class. In all other Classes, One Shilling for each Class.

Entry Forms will be supplied on application to the Hon. Sec., or forwarded on receipt of a stampled envelope.

All Exhibits must have a label attached, *distinctly marked*, with number of the Class for which they are intended, and if for Sale the price must also be *distinctly marked* on, and in the Honey Classes the *net weight* and *price*, which must include the vessel or package containing it. The Association will *not* undertake to break bulk, nor allow it to be done.

No Exhibit shall be allowed to compete in more than one Class.

Any person Exhibiting Honey for Competition which is not this year's produce, and gathered by his or her own bees in the natural way, will be disqualified in all Classes throughout the Show, and all such Exhibits will be marked *disqualified for fraud.* The Judges will be specially instructed to enforce this rule.

The Association will provide Salesmen, through whose hands all monies must be paid; the Exhibitor will be charged One Penny in the Shilling commission on all Sales. The Committee are desirous that all Exhibits should be delivered at the place of Exhibition by 6 p.m. on Monday, August 12th. None will be admitted after 10 a.m. on the day of Exhibition. The Judges are empowered to withhold Prizes if the Exhibits in any Class are not considered of sufficient merit. Members and Exhibitors will be admitted to the Exhibition Free. No Exhibit to be removed until after the Close of the Exhibition, except Honey, which *purchasers* may remove by permission of the Committee, provided that the same has not obtained a Prize. The Committee will take every care of all Exhibits entrusted to them for competition, sale, or otherwise, but they will not be responsible for any loss or damage from any cause whatever.

MANIPULATION WITH LIVE BEES.—Practical illustrations of Manipulating with Live Bees, showing the best Methods of Driving, Making Artificial Swarms, Transferring Combs from Straw Skeps to Bar-frame Hives, Finding Queens, &c., will be given during the day of Exhibition, by the great Bee-master, Mr. C. N. ABBOTT; also by the Rev. D. W. PENNELL, Mr. J. G. DESBOROUGH, and Mr. R. SYMINGTON. Arrangements will be made by which visitors may view with safety the mysteries of the Hive, and witness the perfect command the Scientific Apiarian has over his Bees.

The Committee will feel obliged by your making the Association and its objects, as well as the forthcoming Exhibition, known amongst all who take an interest in Apiculture and the welfare of our Cottagers. The Committee have given careful consideration to the Prize Schedule, which they hope will give general satisfaction. Eminent Apiarists have kindly promised to be present, and will explain the various exhibits. By order of the Committee, R. R. GODFREY, Hon.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 65. Vol. VI.] SEPTEMBER, 1878. [Published Monthly.]

Editorial, Notices, &c.

SEPTEMBER.

The dull cold weather which prevailed during the past month has been exceedingly unwelcome to bee-keepers, as it has in many instances prevented the finishing of supers, and generally has hindered the labour of the bees at the moors. Nevertheless, taken as a whole, the 'season' which has now drawn to a close may be considered a fairly satisfactory one. August has been the month of Shows; and the quantity of honey exhibited ought to be a criterion of the harvest which has been gathered. But we fear that until a *honey fair* is established where bee-keepers can bring or send their honey for sale, with a reasonable prospect of its being sold, the quantity on view at a Show where the chance of a prize to a small exhibitor is remote, will be misleading rather than otherwise.

Lincolnshire, ever in the van, intends to lead the way, and endeavour to establish an annual fair for the sale of honey, &c., at Grantham; and under the able management of their Bee Association Committee, with the direct practical help of their energetic hon. sec. Mr. R. R. Godfrey, the fact may be almost said to be accomplished.

We have heard a serious complaint at Shows of the uselessness of ordinary cottagers (for whose especial benefit Bee Associations profess to labour) competing against such men as have year after year swept away the prizes 'open to cottagers' throughout the country. We should be sorry to see a rule made that would exclude the so-called 'foreigners' from provincial shows, but think some means of handicapping should be devised, which would prevent such a terrible 'bogey,' as the cottager who carried off over a dozen pounds sterling in prizes at the South Kensington Show, from frightening the cottagers in the provinces. Whether this can be done by more careful classification, or by handicapping winners at previous meetings, it is not our province to determine; but we certainly think the complaint worthy of notice by the Committees of Associations.

A new notion for inducing bees to take possession of supers has been started by a gentleman residing near Sandhurst. He coils a tube round his super, and fills the former with hot water, and in five minutes the bees take possession and work with a will. Presently we shall hear of Apicultural Hot Water Engineers, and circulating boilers warranted to keep the bees in working order, and help them in evaporating the water from their honey. Glass has fallen into bad odour for supers on account of its *coldness*; now it is to come into use again because it is capable of being easily warmed. Artificial warmth will doubtless be a great help to bees in cool summers, and it may be possible to attend to a few hives, and aid them with it; but in large apiaries it would be scarcely possible.

WORK FOR THE MONTH.

September brings us to the end of the honey season, leaving little for the bees but the ivy, from which in favoured places they may in fine weather gather their latest store.

Examination of Stocks should be proceeded with without delay, and all weak ones should be united. If two or three of that kind be near each other, they should be made into *one*, and the spare combs preserved for future use. Weak stocks standing near to strong ones should be united to them.

Autumn Feeding.—We have continually advocated gentle stimulative feeding as a means of causing the continuance of breeding, so that the hive may contain young bees when the winter causes them to take possession of their cells for protection against cold weather. Neglect of this precaution leaves a hive with few but aged and half-worn-out bees; and although such may commence work in spring with their usual activity, it frequently happens that, being already well worn, they perish before sufficient young bees have been brought forth to take their places, and the hive, having

lost their services as heat producers, dwindles away, to the great astonishment of its owner. Keep up the breeding, therefore, as long as possible, for even though there be no positive increase in numbers thereby, the hive will contain young bees instead of old ones, and this alone will be an incalculable benefit.

Condemned Bees are valuable when they can be obtained near home by driving, but if obtained from a distance, and they have to bear a long railway journey, they will be of little use for wintering. Such bees are not capable of comb-building at so late a date, with any prospect of living until spring; therefore they should be caused to breed plenty of young bees, as above mentioned, to take their places. It should be remembered that the life of bees is not a question of days, but of labour performed, and every buzz helps to exhaust them.

Waste-brood Combs. — When cottagers smother their bees, or when they allow them to be driven, there are often small patches of brood in the combs which seem too small to be of any use, but if placed over the crown hole of a populous skep, supported by little sticks thrust into the hive, and a flower-pot inverted over them, the bees will ascend and hatch out the young bees. A bar-framist would, as a rule, insert the brood in his hive, but it may be forthcoming at a time when it would be unwise to open the hive, and in such cases it is as well to know how to save it.

Prevent Robbing.—Be careful not to spill any honey or syrup near hives. Narrow the entrances of all, especially of those that are being fed. Perform such operations as are necessary late in the day; and if likely to be lengthy, close all other hives, giving ventilation at top, until the work is performed. Night stops robbing for the time being, and any hive attacked during the evening operation should be removed after dark, and an empty one set in its place. The one removed may be placed in a dark cellar, but the hive entrance must not be closed. Where a cellar is not readily comeatable the hive may be set on some newly-dug ground, and a sound tub (without head) turned down over it, and pressed into the earth. This will make a dark cellar sufficient for the purpose, and it may easily be ventilated by a tube bent like a U being placed under its edge, when being pressed into the ground it will stand fast.

Prevent Dampness.—Nothing is much more dangerous than dampness in a hive, it causes most of the diseases to which bees are liable, therefore be careful to see that the roofs of hives are sound, that the space between quilt and roof is well ventilated, and that the lower part of the hive is protected from driving rains and snow.

THE GREAT SHOW AT SOUTH KENSINGTON.

The fourth great exhibition of bees and their produce, hives, and bee-furniture, held by the British Bee-Keepers' Association, under the presidency of the Baroness Burdett Coutts, took place on Tuesday, Wednesday, and Thursday, August 6, 7, and 8th; and with great pleasure we record it a grand success. The Association may be honestly congratulated on having obtained the services of the Rev. H. R. Peel as their Honorary Secretary; and through his influence the prestige, which so deservedly attaches to the honoured name of its lady president, the distinguished patroness of all that is humane, or that has for its object the improvement of the condition of the poor and needy, wherever they may be found. It is unnecessary here to dwell upon the origin of the Association or to criticise its past career; suffice it therefore to say that it sprang into existence in 1874, solely through the influence of the *British Bee Journal* and its Editor, with the twofold object of 'advocating humanity to the honey-bee;' and 'the advancement of bee-culture as a means of bettering the condition of the cottagers of the United Kingdom. These were its objects in 1874, and they are the same now; and we think it may be fairly said that at no previous epoch in its career has the Association been in a better position before the world, or enjoyed a more felicitous prospect of future permanent usefulness.

The policy of holding the shows continually in or near London may be open to question, and will doubtless be well considered hereafter; but it having been determined that this the fourth should be a metropolitan show, it will be granted on all sides that no better facilities could be found than those offered by the Royal Horticultural Society at their splendid gardens at South Kensington; and when it is remembered that horticulture and apiculture are twin sciences that cannot exist one without the other, their happy association on this occasion must be particularly gratifying. Apiculture has occupied the minds of thoughtful men from time immemorial; the value of the bee as a fertiliser of flowers and blossoms was well understood, and as honey-gatherers they were highly esteemed; but their wondrous ways and the 'ordering' of their homes have never been fully divined. They have been invested with all sorts of supernatural gifts; they have been praised and blamed, esteemed and condemned; and until of late years those that best fulfilled the purpose of their existence were ruthlessly slaughtered by their ignorant owners, and only such as failed in the race were allowed to pay the debt of nature in the natural way. Now, how-

ever, there is a power raised up to combat the ignorance and prejudices that have destroyed the best bee-blood (if we may use the term) of the world for ages past, a course that would be sanctioned in no other branch of husbandry, where profit is the object in the culture of animals or insects, and that power was invested in the British Bee-Keepers' Association in the first instance, and is shared by the numerous county organizations that are following its lead. May they go on and prosper exceedingly!

The part of the gardens devoted to the exhibition is a little to the west of the Albert Hall; the hives and bee-produce were in a spacious piazza, looking upon beautiful grassy mounds, and scenery rendered delightful by the master hand of landscape designers; the bees, in their hives for observation purposes, were nicely accommodated under a central pagoda, and those for manipulation were arranged around the exhibition-tent, which had been provided by the Bee-Keepers' Association from a design by Mr. Huckle, of Kings' Langley, who was also the manufacturer of it; the whole standing in a grassy dell, between the pagoda and the building in which the hives, &c., were on view. Monday, the day before the show, was a Bank Holiday, and, as a consequence, through railway congestion, many exhibits did not arrive at the rendezvous until late on Tuesday morning, a fact which delayed the judging and the opening of the exhibition, until later than was anticipated; but without waste of time the judges fulfilled their duties, and the promenade was quickly filled with a host of appreciative and inquiring visitors.

In presenting the list of awards we abstain from comment which might seem invidious; but to give every exhibitor of hives and appliances the fullest opportunity of explaining the minutiæ of his inventions, we have sent to each of them a printed request, in the following terms:—

'We are desirous that the exhibits at the late hive and honey show at South Kensington should be fairly and fully laid before the world *from the inventor's own point of view*; and shall esteem it a great favour if you will forward to us a written description of your exhibit, for publication in the *Bee Journal*, at the earliest possible date. Inventors often feel aggrieved, and justly so, when the pith of their inventions is overlooked, or is not recorded, and it is to avoid this unpleasantness, and give to bee-keepers generally the benefit of every thought and suggestion in aid of the science of apiculture, that we have taken the liberty of preferring this request.'

Our idea of *best* in regard to hives and bee-furniture, will be found in the exhibits of Abbott Brothers, who received an award in every class in which they exhibited. Nevertheless, we do not believe finality has yet been reached in such inventions, and have no desire to force our 'notions' or opinions on others, and therefore we hope the above request will be largely complied with, and that the ideas which prompted inventors may be given to the world.

The following is the award of prizes:—

Hives.—Class 1—For the best Hive for observation purposes, all combs to be visible on both sides. To be exhibited stocked with bees and their queen: 1st, Mr. Brice Wilson, silver medal; 2nd, Abbott, Bros., bronze medal. Class 2—For the best Moveable Comb Hive, to include covering and stand: 1st, Abbott, Bros., silver medal; 2nd, J. M. Hooker, bronze medal; 3rd, S. J. Baldwin, certificate. Class 3—For the most economical (best and cheapest) complete Hive, on the moveable comb principle, for cottagers' use, including cover and floor-board: 1st, James Lee, silver medal; 2nd, Abbott, Bros., bronze medal; 3rd, J. Hall, certificate. Class 4—For a Hive for general use, on an entirely new and approved principle: 1st, Abbott, Bros., silver medal; S. Simmins, certificate. Class 5—For the best Straw Hive for depriving purposes, cost to be taken into consideration: certificate, W. Sells.

Supers.—Class 6—For the best and cheapest Supers for general use in an apiary: 1st, James Lee, silver medal; 2nd, Brice Wilson, bronze medal; 3rd, Abbott, Bros., certificate. Class 7—For the cheapest, neatest, and best Supers for producing honeycomb in a saleable form: 1st, James Lee, silver medal; 2nd, J. Hunter, bronze medal; 3rd, Abbott, Bros., certificate.

Bees.—Class 8—For the best stock of Ligurian or other foreign bees: 1st, S. J. Baldwin, silver medal; 2nd, George Neighbour and Sons, bronze medal; 3rd, George Neighbour and Sons, certificate. Class 9—For the best stock of Pure English Bees: 1st, Rev. F. T. Scott, silver medal; 2nd, George Neighbour and Sons, bronze medal; 3rd, withheld.

Honey.—Class 10—For the largest and best Harvest of Honey in the Comb from one stock of bees, under any system or combination of systems: 1st, S. Thorne, 2*l*.; 2nd, E. Gulston, 2*l*. Class 11—For the best exhibition of Super Honey from one apiary: 1st, withheld; 2nd, W. Martin, 1*l*. Class 12—For the best Super of Honey. The super to be of wood, straw, or of wood in combination with glass or straw: 1st, J. Lighton, 2*l*.; 2nd, W. Martin, 1*l*. 10*s*.; 3rd, W. Sells, 1*l*.; 4th, A. A. Figg, 15*s*.; highly commended, Baroness B. Coutts. Class 13—For the best Glass Super of Honey: 1st, W. Sells, 2*l*.; 2nd, W. Martin, 1*l*. 10*s*.; 3rd, W. Martin, 1*l*.; 4th, J. Thorne, 15*s*.; 5th, J. Walton, 12*s*. 6*d*.; 6th, Mrs. J. W. Pagden, 7*s*. 6*d*.; very highly commended, W. Templeton. Class 14—For the best exhibition of Honey in Supers, or sections of Supers, separable, and each not more than 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs.: 1st, S. Thorne, 1*l*. 10*s*.; 2nd, W. Hunt, 1*l*.; 3rd, W. Freeman, 10*s*.; 4th, J. Walton, 7*s*. 6*d*. Class 15—For the best single section in the Comb, weighing not more than 3 lbs.: 1st, W. Hunt, 10*s*.; 2nd, J. Walton, 5*s*.; highly commended, W. Freeman, Brice Wilson, Abbott, Bros., P. E. Martin. Class 16—For the best exhibition of Run or Extracted Honey, in glasses of 5 lbs. to 10 lbs. each: 1st, W. Sells, 1*l*.; 2nd, S. Thorne, 12*s*. 6*d*.; 3rd, J. Walton, 7*s*. 6*d*.

Cottagers' Classes.—Class 17—For the largest and best exhibition of Super Honey in comb, the property of one exhibitor, and gathered by his own bees: 1st, W. Martin, 1*l*., and hive valued 17*s*.; 2nd, J. Walton, 10*s*., and hive. Class 18—For the best Super of Honey: 1st, W. Martin, 2*l*.; 2nd, W. Martin, 1*l*. 10*s*.; 3rd, J. Walton, 1*l*.; 4th, W. Winter, 15*s*.; 5th, P. H. Fowler, 10*s*.; 6th, Thos. Sells, 7*s*. 6*d*.; 7th, P. H. Fowler, 5*s*.; highly commended, Thos. Sells. Class 19—For the best exhibition of Run Honey in glass jars, containing 5 lbs. to 10 lbs. each: 1st, W. Martin, 1*l*. 10*s*.; 2nd, P. H.

Fowler, 1*l.*; 3rd, J. Walton, 15*s.*; 4th, M. Freeman, 10*s.*; 5th, E. Youens, 7*s.* 6*d.*; 6th, C. Sanders, 5*s.*

Comestibles.—Class 20—For the best Mead or Beer made from honey, with recipe attached: 1st, R. Symington, silver medal: 2nd, R. Symington, bronze medal.

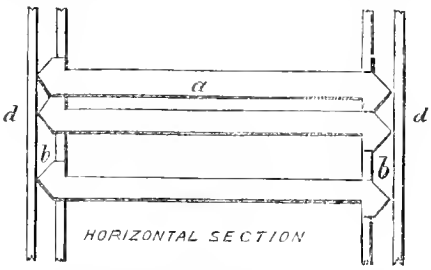
Miscellaneous.—Class 21—For the best and largest collection of Hives, Bee Furniture, Bee Gear, and Bee-keepers' necessaries; no two articles to be alike: 1st, G. Neighbour and Sons, silver medal. Class 22—For the best Honey Extractor: 1st, Stephen Knight, silver medal: 2nd, Abbott, Bros., bronze medal; 3rd, G. Neighbour and Sons, certificate. Class 23—For the finest sample of Pure Bees'-wax, not less than 3 lbs. in weight: 1st, W. Sells, 10*s.*; 2nd, W. Hunt, 7*s.* 6*d.*; 3rd, W. Martin, 2*s.* 6*d.* Class 24—For any New Invention calculated in the opinion of the judges to advance the culture of bees: 1st, Abbott, Bros., silver medal; 2nd, R. Iliffe, bronze medal. Class 26—For the best Microscopic Slides illustrating the natural history of the honey bee: 1st, J. Hunter, silver medal. Class 27—For the best and largest display of British Bee Flora in a dried state or otherwise, such plant or specimen to have a card attached, stating time of flowering, duration of bloom, and any other particulars calculated to be of interest to bee-keepers: 1st, withheld; 2nd, W. Hunt, bronze medal and 10*s.* Class 29—For the best and cheapest Honey Jars, with covers and fastenings complete, to contain 1 lb. and 2 lbs. each of extracted honey: 1st, J. Jackson, 10*s.*; 2nd, G. Neighbour and Sons, 5*s.*

Honey Fair.—Driving Competition.—Class 32—For the Competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, and capture and exhibit the queen: 1st, W. Martin, silver medal and 1*l.*; 2nd, James Thorne, bronze medal and 10*s.*; 3rd, R. Symington, certificate and 5*s.*

ABBOTT'S COMBINATION HIVE.

Two Silver Medals at the Great Show at South Kensington.

This hive, the gradual outcome of many years' study and observation, places us, its inventor, in the proud position of chief prize-winner in respect of English bar-frame hives for the fourth consecutive year, and appears to have created quite a sensation amongst bee-keepers, since it promises to greatly aid them in their sometimes laborious, always pleasurable, and generally profitable pursuits. We do not propose to enter into the merits or demerits of other hives, time is too precious and our space too limited at the present to permit any such comparison; but we hope to so explain our latest improvement as to justify us in calling it the 'Combination Hive.' It is well known to readers of this *Journal*, that for some years discussion has been raging as to the size of frame that should be adopted as the standard size for England; but though it had been repeatedly before the public no decision was arrived at; and, feeling that a blow should be struck, and having taken highest honours with our hive in 1875 and 1876 at the London and all the provincial shows where it was exhibited, we determined to call it 'the Standard,' and hence its frames would be 'Standard' also. It would be right, in passing, to mention that these frames are 16½ inches long at the top, 15¾ at the bottom, and 10 inches deep, all outside measure; the top bars are flush with the top of the hive sides, and extend over the ends where they are widened each way, as shown in the engraving, which represents a portion of the

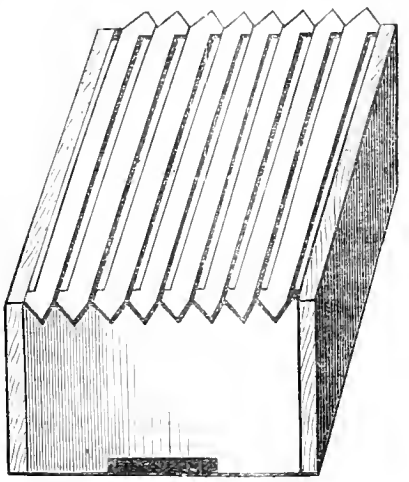


top of the hive when the quilt is removed. It will be seen that by thus widening the frame ends in both directions, the fullest bearing surface is obtained, giving the utmost stability and preventing the rocking at the lower ends which induces bees to join the combs together to secure firmness in their dwelling-place. This rocking of combs may seem a trifling matter, but its prevention saves the bees the labour of throwing out stanchions of wax, and the bee-keeper the disagreeable necessity of breaking them and tearing the combs every time he opens the hive to inspect them. Suffice it then to say, that in the new hive, we have in regard to frames adhered to the patterns which have for the past three years given such general satisfaction, so that, although there has been a slight alteration of the hive, the frames of the Standard will still be interchangeable—a fact of no slight importance in a well-kept apiary—and one that will enable those who already possess the Standard hive to glide into the new principle with the minimum of difficulty and expense.

We have said that the Standard has only been slightly altered, but a radical change has been made in its principles; and we are glad to say that those principles are equally applicable to any and every hive having moveable combs, and in a modified sense to every other kind of hive. In describing the hive and its principles our chief difficulty is to determine where to begin; like the writer on poultry who wished to begin at the beginning, and could not make up his mind whether the egg or the hen ought first to be considered, we scarcely know whether to begin with the hive as for winter, spring, summer, or autumn use, and therefore beg to be excused if in taking things as they are, and commencing, as it were, now, we do not quite meet the views of all our readers.

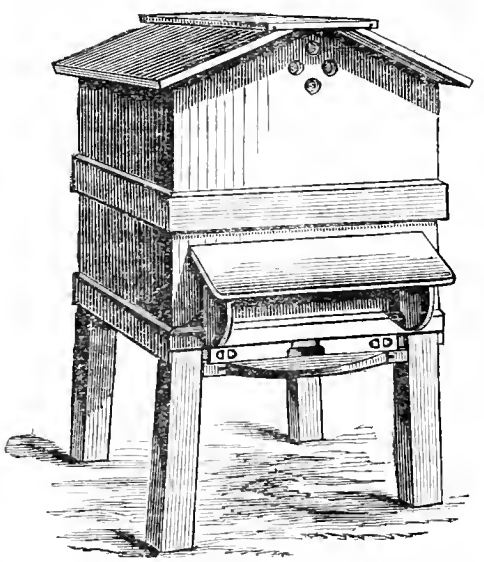
We will suppose that a bee-keeper has one of our cheap Makeshift Standards, containing eight frames, costing 4*s.* 6*d.* He will have

provided a floor-board, quilt and roof, and the swarm within it, after such a summer as the past will, or ought to, have filled it with combs, &c., and rendered it populous. Winter is



approaching, and the careful bee-keeper looks out for a 'snuggery' in which to place the stock so that it may be efficiently protected during the trying time, and the 'Combination' hive is exactly what is required for the purpose, and now we must describe the article.

As aforesaid, the hive differs little in appearance from the 'Standard,' which most of our



readers will recognise as an old acquaintance. Its dimensions are 17 inches from side to side, and 24 inches from front to back, inside measure; and it is of the same depth as the original. Inside this receptacle the cheap hive can stand, thoroughly protected from the weather, yet accessible in a moment; and in it we would leave it, perfectly content that a stock thus protected would need little if any attention during the winter. In such a receptacle it might be packed round with chaff, hay, sawdust, or any other material for 'keeping out the cold;' and such practice would rival, if not excel, the vaunted method adopted by the Editor of *Gleanings* in America, where the 'chaff-hive' is the all-in-all for safe wintering. But having passed the trying ordeal, and arrived safely in health and prosperity to the spring, what then occurs? No longer are the bees confined to the Makeshift hive, where the space is limited, and from whence they are almost compelled to swarm; but they are placed in the Combination-hive itself, *the only hive in the world in which swarming can be positively prevented*, and the work of the hive go on unhindered.

At the first sign of necessity for increased space, the eight-framed hive would be lifted from its position within the 'Combination,' the latter cleared of the packing, if any had been used, and the eight frames of comb and bees placed *crosswise* in it, parallel to the entrance slides, where they would occupy only half the space at command. Frames *across* the hive! Why, Mr. Editor, only about three years ago you wrote and taught that combs should be perpendicular with the entrance front, both for the convenience of the bees, and to economise their labour?

It is true that up to a certain point we followed the lead of the great Mr. Woodbury, but have since learned, what we have often since expressed, that making conveniences for bees is, as a rule, *moonshine*. They will not accept them, but prefer to go their own way, and do their work according to their own instincts. There have been writers, who having 'said' a thing in their early days which was not strictly correct, have spent the better part of their after-life in obstinately defending their position, and considered themselves perfectly 'consistent,' though actually convinced to the contrary. But in this case we are quite willing to acknowledge ourselves wiser than we were three years ago, and hope, as we believe, that our opinions, then expressed, have done no one any injury.

But to return: the frames of comb are now across the hive, at the front end; and as it is *well understood* that bees store their honey at the farthest point from the entrance of their hive, we think it will be admitted that the back part offers exactly the conditions they require for that purpose. Now until the bees show signs of increasing in numbers, or the incoming of honey warrants the offer of increased space for its stowage, the bees and combs are shut up in the front half of the hive by an ingeniously constructed division-board, when practically

they are as they were in their former hive, except that the entrance is at one side of instead of at the end of the frames. When, however, more space is required, and honey is wanted, we take a perforated zinc 'excluder' and insert it between the 7th and 8th combs, leaving one comb within the honey department, and seven in the brood nest.

Next to this comb we place a wide frame, containing several small sections, such as are usually placed above when supering, and beyond that the wooden divider which shuts up the back as before stated. Here, then, is a hive with the bees practically in their original condition, but with space given where they most love to store the honey, but to which space the queen has no access, so cannot possibly contaminate it with brood. She, *i.e.* the queen, will deposit eggs in all the combs on the front side of the zinc-excluder, and the bees will as a rule deposit pollen on the other side, which gives the reason for leaving one of the old combs in the honey department. As time goes on, and strength increases, more honey space may be given at the back; indeed the whole of that part may be devoted to the purpose, and if necessary the whole of the top may be covered with sections, two or three deep, so that unlimited space may be secured for any emergency. Should a swarm issue, the original Makeshift hive will be ready to receive it, but in the event of supers and sections being in a forward state, when it is desirable that swarming should be prevented, a second queen-excluding diaphragm may be inserted between the first and second frames in front, her majesty being thus securely confined to the breeding space, and swarming for the time rendered impossible. In the unavoidable absence of other engraved illustrations we are unable to continue our description as lucidly as we could desire, but trust sufficient has been explained to interest our readers in the principle involved.

In our next the subject will be pursued, and rendered so perfectly intelligible that any one with a notion of sawing, planing, and hammering, may make his own 'Combination.'

COMING SHOWS, 1878.

Sept. 4, 5. Honey and Flower Show of the Frimley, York Town, Camberley, and Sandhurst Horticultural Society, to take place in the gardens of the Government House, Royal Military College, Sandhurst.

Sept. 5. Campden; Rev. R. F. Watson, Chipping Campden, Gloucestershire, Hon. Sec.

Sept. 5, 6, 7. East of Scotland; Mr. William Raitt, Hon. Sec., Liff by Dundee.

Sept. 12. Caledonian Apiarian and Entomological Society, Glasgow; Mr. R. J. Bennett, Sec., Glasgow.

Sept. 14. Stirling, at Corn Exchange; Mr. W. J. Clarke, 4 King Street, Stirling, Hon. Sec.

Sept. 14. East of Scotland Bee-keepers' Society. Banchory, at Town-hall; Mr. J. D. Ker, Douglasfield, Dundee, and Mr. R. M'Gregor, Inchmarlo, Banchory, Vice-President, who will act as Hon. Sec.

Sept. 24. Moreton-in-Marsh; Rev. J. W. Clarke, Hon. Sec., Moreton-in-Marsh.

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY'S SHOW AT DUMFRIES.

The fourth annual exhibition, and second in connexion with the Highland and Agricultural Society of Scotland, was held at Dumfries on the 30th and 31st July, and the 1st and 2nd August. It was a great success, and was visited by upwards of 3000 people, the sum drawn at the gates exceeding 70*l*.

The display of hives and bee-furniture generally was most creditable to the Scotch makers—Messrs. Steele, Young, Thomson, Allen, Armstrong, and others: still the very full collections of their southern competitors—Messrs. Abbott Bros. and Geo. Neighbour and Sons, as at Edinburgh, were much missed; while, owing to the very favourable nature of the season and well-known capabilities of the district, as was to be expected, the honey exhibits, for quantity as well as quality, far exceeded those at Edinburgh last season.

The experienced bee-keepers of Ayrshire carried off first honours for honeycomb with some of their usual high-class beautiful octagon specimens.

The class for run honey was largely filled, and of a very high order of merit; and to adjudicate their awards must have cost the judges, Messrs. Saunders and Muir, very great trouble indeed, and the success with which they accomplished their task drew forth the warmest encomiums from all skilled visitors; so close were they that a few motes present in one of the finest flavoured glass jars were sufficient to cast it, at the same time teaching a useful and much-needed lesson of scrupulous cleanliness to cottagers and others in draining honey.

The rare beauty and richness of the first prize glass from Ecclefechan so captivated a contemporary that he was carried away to comment thus on the birth-place of the 'Seer of Chelsea,' who, by the way was then present on his annual holiday, overlooking the show ground:—'He (the Seer) may have been reared on honey; and if so was not the first prophet who was so fed "till he knew how to refuse the evil and choose the good." The observatory hives delighted the crowds of visitors, the queen, as usual, being the centre of attraction—'court etiquette,' as illustrated by the respectful backward retirement of the attendants. The arrival and movements of the pollen and honey-laden workers were viewed with much interest, while the misses and little strangers bursting on the busy scene attracted the ladies. To many the most interesting part of the proceedings was the manipulation with living bees, conducted by the Rev. Mr. Irving of Inellan, Mr. Paterson, Struan, and Mr. Wilkie, Gourock. These gentlemen with great coolness and dexerity went through the different processes of expelling bees from their hives, uniting swarms, and transferring combs and bees from straw skeps to bar-frame hives. In the course of the afternoon of the 31st a very interesting and practical lecture was delivered by the Rev. Alex. R. Finlay on some recent improvements in the construction of hives, &c. The principal point was the novel application by Mr. Paterson of Struan of plaster of Paris in the formation of the

inner shell of the hive. The following advantages were claimed for the use of this material: (1) that it absorbs the moisture, which is to so large an extent destructive of the prosperity of the hive, especially in the winter and early spring; (2) that it equalises the temperature of the hive, the inside atmosphere being comparatively warm in winter and cool in summer, thus materially assisting the bee master in his efforts to prevent swarming; and (3) that it discourages or effectually checks the presence of moths and other enemies of the bee. The lecturer also called attention to the new bee-feeder, which yesterday received the first prize. It is in the form of an ordinary frame, and with a minimum of trouble gives a maximum of syrup to the bees. Besides preventing the possibility of accident or loss, it can be used without disturbing the inmates of the hive or lowering its temperature. A new form of swarming skep was also described, remarkable for its portability and convenience, and by means of which swarms can be transferred to frame-hives in a few minutes. The lecturer closed with a reference to a new economical iron hive cover, neat, cheap, and durable. Rev. Mr. Gillespie, Monswald (editor of the *Galloway Herd Book*), presided at the lecture: and on the motion of Rev. Mr. Saunders, Tundergarth, a vote of thanks was given to the lecturer.

Thanks of all apiarians are due to the Highland and Agricultural Society's Secretary, Mr. F. N. Menzies, for his urbanity, and the facilities afforded for carrying out the show, as also to the Caledonian directors, particularly their indefatigable Secretary, Mr. R. J. Bennett, for his untiring efforts to make the show the success it became.

The following were the awards of the judges:—

Clover or Flower Honey.—For the two best filled and finished supers above 20lbs. each—1, John Muir, Fenwick; 2, Wm. Templeton, Racks, Dumfries; 3, Thos. Tennant, Ecclefechan. For the best filled and finished super above 20lbs.—1, Jas. Bailie, Kilmaurs; 2, Wm. Laughland, Kilmarnock; 3, R. M'Cririe, Dumfries. For the best filled and finished super above 10lbs. and under 14lbs.—1, John Hutchison, Racks, Dumfries; 2, John Smith, Dalbeattie; 3, Walter Thorburn, Ecclefechan. For the best filled and finished super in straw, wood, or glass, or any combination thereof, any size—1, Wm. Templeton, Racks, Dumfries; 2, Walter Thorburn, Ecclefechan; 3, Thomas Tennant, Ecclefechan. For the best sample of run or extracted honey, not less than 5lbs.—1, Thos. Tennant, Ecclefechan; 2, Walter Thorburn, Ecclefechan; 3, John Smith, Dalbeattie; 4, W. Templeton, Racks, Dumfries.

Hives and Wax, &c.—All hives to be fitted with guides ready for use.—For the best hive for observation purposes, all combs to be visible on both sides, stocked with bees—1, R. J. Bennett, Glasgow; 2, W. W. Young, Perth. For the best and most perfect bar-frame hive with super, or set of sectional supers, and cover complete—1, Wm. Thompson, Blantyre; 2, R. J. Bennett, Glasgow; 3, J. Steele, Fowlis, *viâ* Dundee. For the most perfect hive on the storifying principle—1, J. Steele, Fowlis; 2, Wm. Thomson, Blantyre; 3, James Allan, Stewarton. For the best straw hive of any description—1, William Kennedy, Dumfries; 2, W. W. Young, Perth. For the two best samples of wax, in cakes of not less than 1lb. each—1, Wm. Laughland, Kilmarnock; 2, J. Steele, Fowlis; 3, Wm. Kennedy, Dumfries. For the best frame-hive made and invented by a cottager (hive manufacturers excluded from competing for this prize)—1, George Armstrong, Corbelly Hill Cottage, Maxwelltown. For the best and largest collection of hives, bee furniture, bee gear, and apiculturists' necessaries, no two articles to be alike—1, J. Steele, Fowlis, *viâ* Dundee; 2, W. W. Young, Perth. For the best bee feeder, the invention or adaptation of exhibitor—1, D. Paterson, Struan. For the cheapest, neatest, and best supers for producing honeycomb in a saleable form—1, J. Steele, Fowlis, *viâ* Dundee; 2, Wm. Thomson, Blantyre. For the best honey extractor, cost to be taken into consideration—1, W. W. Young, Perth; 2, J. Steele, Fowlis, *viâ* Dundee. For any new invention calculated in the opinion of the judges to advance the culture of bees—R. J. Bennett, Glasgow. For the best liqueur or wine made from honey, with recipe attached (not less than two quarts)—1, R. Symington, Market Harborough; 2, William Kennedy, Dumfries. Mr. Kennedy also obtained the silver medal for the best exhibit in the honey fair department, which is set apart for the sale of honey and honeycomb in glasses and supers.

THE LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

(*From the Stamford Mercury.*)

The third annual exhibition of honey, bees, hives, &c., with practical apiarian manipulations in connexion with this Society, was held at Stamford on Tuesday. As the Association is in its infancy, and is perhaps almost unknown to thousands of our readers, a few extracts from the Society's 'appeal' to the public will explain its aims and doubtless prove advantageous to many people: 'The object the promoters had in view was the extension of the more humane and profitable system of apiculture, by which any person, with a fair amount of attention and perseverance, and without destroying annually any of his stocks to secure a comparatively small amount of honey, may be enabled, not only to preserve them alive and increase them to the utmost extent of his accommodation, but to realize an annual profit varying from 100 to 600 per cent upon his outlay. The introduction of the "honey slinger," by means of which honey in its purest state is extracted and the comb preserved, is amongst many other things which this Association is desirous of making more widely known. This happy invention entirely supersedes the old system of destroying the comb to obtain the honey, which is a most objectionable and wasteful practice, for thus not only is the delicious nectar rendered impure by contamination with the crushed brood and the flavouring matter of the farina, but ten times the value of the comb as wax is lost by the precious time of the bees wasted in building new comb, which time would be more profitably spent in storing honey for their owner. Very few persons are aware how readily they might add to their incomes by a very small outlay of time and money spent upon bees; besides the pleasure they would derive while engaged in one of the most interesting of all rural pursuits, and the knowledge that they were adding to the beauty and fertility of their gardens and fields, and assist in securing tons of wax and honey that would otherwise be wasted for want of bees to gather it. Any one possessed of a small plot of ground, or an unused out-house or loft, in which a few hives could be placed, might easily engage in so desirable a pastime. Many instances might be cited of the profitable nature of bee-keeping. Two persons who kept their bees upon the old system of destroying the bees to secure their harvest of honey, without supering, realized from their united stocks, numbering twenty-eight, an average of 17*s.* per stock, leaving thirty-one stocks for the next year. But by the more skilful management of advanced apiarianism, one gentleman exhibited at the Crystal Palace Show, in 1874, 907 lbs. (worth 1*s.* per lb.) of pure honey from twelve hives without destroying any bees, still leaving them sufficient provision for winter. The committee therefore suggest apiculture to all who are anxious to increase the comforts and love of home of the labouring population by promoting one of the most interesting and instructive pursuits which no one who has once devoted a little time and attention to would willingly relinquish. To all, in fact, who would wish to foster habits of thrift, of

temperance, and patient industry amongst their fellow-countrymen, the Association just established is specially commended.'

The Bishop Suffragan of Nottingham is president of the Society; there is a goodly array of vice-presidents; there are about two hundred members, and the annual subscription is *2s. 6d.* H. Levick, Esq., is the treasurer. The courteous secretary is Mr. R. R. Godfrey, of Grantham. The exhibition this year was under the patronage of the Countess of Lindsey. In the Corn Exchange there was a large display of bees in 'observatory hives,' *i.e.*, glass cases in which the little labourers can be seen in all the activity of their methodic bustle. It was extremely interesting to watch their movements. It is well known to those who have studied the habits of the bee that it is one of the wisest of sanitarians—wiser, in fact, than many of the children of men—and that when a hive requires a more copious supply of fresh air a gang is told off on fatigue duty to the mouth of the hive to induce an inward current by a continuous flapping of the wings! In one observatory, where there was evidently something wrong, we more than once noticed a bee making persistent efforts to pitch the corpse of a comrade 'anywhere, anywhere out of the hive:' it time after time climbed with its burden to the top of the tall glass case, it tried every nook and cranny in the hope of finding an outlet for the dead, and at last had to give up the task as an utter impossibility. Had the entrance to the hive been open the lifeless insect would instantly have been carried out. The queen-bee, too, could readily be distinguished among the busy throng: she might be seen the centre of a circle actually receiving the homage and attentions of her immediate attendants. Among the many appliances used in bee-keeping, with which the Exchange Hall was furnished, we noticed an 'observatory hive' which can be attached to the inner wall of a bed-room or drawing-room, ingress and egress for the bees being provided for by a tube communicating with the outside of the house; a 'combination hive' that was awarded a silver medal at Kensington as the best hive shown, and another silver medal as the best hive on a new principle: these were exhibited by Mr. Abbott, who also showed his arrangement of sectional supers, by means of which, after the bees have done their work, the honeycomb may be removed in small portions. Mr. Brett, of Grantham, had also a good display of bee-gear. Several of the committee and others were in attendance throughout the day, cheerfully explaining the uses to which the different apparatus are put by bee-masters of the modern school, and pointing out the immense advantages to be derived by adopting the more enlightened and more humane treatment of the bee. A fine collection of microscopic slides was shown by Mr. John Hunter, formerly secretary of the British Bee-Keepers' Association; and the walls of the room were hung with enlarged pictures illustrating the structure of the different organs of the bee. The show was a very successful one, both as regards quality and quantity: the display in the honey classes was superb. But we venture to think that the botanists of Stamford and the neighbourhood had little to be proud of: there was not a single exhibit in the class for honey-producing plants. To add to the appear- of the stands, Messrs. Brown, nurserymen, of Stamford, showed some trays of charming roses; and Mr. Richard Thompson also sent some choice foliage plants. On the lawn of the quadrangle of Browne's Hospital, Mr. C. N. Abbott, of the School of Apiculture, Southall, Mr. J. G. Desborough, of Stamford, and Mr. Symington, of Market Harborough, all of whom are thoroughly experienced bee-masters, gave practical illustrations of manipulating with live bees, showing the best methods of driving, making artificial swarms, transferring combs from straw skeps to bar-frame hives, finding queens, &c.; Mr. Carr, of Manchester, also delivering short extemporaneous addresses and answering scores of questions put to him by the public. The 'cloisters' of Browne's Hospital, temporarily extended for the occasion, and carefully draped with leno, formed an admirable protection to the lookers-on, banishing all fear of having to 'shake off the bee that buzzes at us.' These manipulations were for a time interrupted by a tremendous band of 'robbers'—bees belonging to strange hives, which were attracted by the honey in the combs that were being experimented with. There was a good attendance of visitors; and from what we saw we are inclined to think that when the Association shall have become better known its exhibition will be regarded as one of the county events of the year. The society's silver cup for the best show of honey taken without destroying the bees was carried off by Mr. William Sells, of Uffington, who had a display of 527 lbs. of honey: this cup fell to Mr. Sells at Grantham last year, and if he again wins it it will become his property.' The judges were—*Bees and Hives:* Mr. T. W. Cowan, of Horsham; Mr. Wm. Carr, of Newton Heath, Manchester; and Mr. R. Symington, of Market Harborough. *Honey:* Mr. C. N. Abbott, of Southall; the Rev. J. L. Sisson, of Edingthorpe, Norfolk; and Mr. J. G. Desborough, of Stamford. The following is a list of the awards:—

Bees.—Class 1—For best stock or specimen of Ligurian Bees, exhibited with the queen in an observatory hive: 1st, Abbott Bros.; 2nd, Henry Yates; 3rd, T. Roberts, jun. Class 2—Ditto English Bees, exhibited as above: 1st, R. R. Godfrey; 2nd, Rev. E. Holmes; 3rd, Geo. Brett. Class 3—Ditto of any species or distinct variety of Honey Bees, other than Ligurians or the British black bees: No competition.

Honey.—Class 4—For largest and best Supers of Honey, the produce of one hive: 1st, Jas. Eaton; 2nd, Jas. Lighton; 3rd, Wm. Measures; 4th, Wm. Martin. Class 5—For best Glass Super, over 30lb. net weight: 2nd, Wm. Sells. Class 6—Ditto under 30lb. net weight: 1st, Thos. Sells; 2nd, J. W. Bickley; 3rd and 4th, W. Martin; 5th, Thos. Sells. Special Prize (by C. N. Abbott, Esq., Fairlawn, Southall), a complete bar-frame hive, for the best and largest Super of Honey exhibited in Class 4, 5, or 6, by a cottager, a member of the Association, to Josh. Allen, Ashfield Lodge, Lincoln. Class 7—For best wood, or wood in combination with either glass or straw, Super of Honey: 1st, W. Martin; 2nd, S. Sandaver; 3rd and 4th, W. Measures; 5th and 6th, S. Sandaver; 7th, W. Martin. Class 8—For best exhibit of Honey in supers, or sections of supers, separable, and each not more than 2lb. in weight, the total of each entry being not less than 10lb.: 1st, Josh. Allen; 2nd, Wm. Measures. Class 9—For best Straw Super: 1st, Jas. Gilbert; 2nd, J. W. Bickley; 3rd, Wm. Sells; 4th, Thos. Sells. Special Prize (by Mr. R. R. Godfrey, of Grantham), current volume of *B. B. Journal*, for best exhibit in Class 9 or 10, by a cottager, a member of the Association, to Joseph Allen. Class 10—For best glass of Extracted or Run Honey, of not less than 5lb. net weight, quality being the chief point of excellence: 1st, Hy. Yates; 2nd and 3rd, S. Sandaver; 4th, Jos. Allen; 5th, John Bolton; commended, H. Yates. Class 11—For best and largest exhibit of Extracted or Run Honey, in glass or other jars: 1st, Wm. Sells; 2nd, Jos. Allen; 3rd, Rev. E. Holmes; 4th, Thos. Sells; 5th, Wm. Measures; 6th, Geo. Brett. Special Prize (by Mr. W. Measures, of Upton, Southall), Abbott's Cottager's Standard hive, for best designed Section or Super, made by an amateur, a member of the Association, to Dr. Eaton. The silver cup of the Association, open to members only, for the best and largest exhibition, in all or any of the honey classes, of Honey taken without destroying the bees (the cup to become the property of the member who shall win it three times), was awarded to Wm. Sells. Class 12—For finest sample of pure bees' Wax: 1st, Wm. Sells; 2nd, Thos. Sells. Class 13—For best

Liqueur, Wine, or Mead made from honey, with the recipe attached: 1st and 2nd, Wm. Sells. Special Prize for Broken Comb and Honey in Jars, Wm. Sells.

Hives.—Class 14—For best Hives for observation purposes: 1st, Abbott Bros. Class 15—For best complete Hive on moveable comb principles: 1st and 2nd, Abbott Bros.; 3rd, C. W. Lister. Class 16—For best and cheapest ditto: 1st, John Hall; 2nd, Geo. Brett: 3rd, C. W. Lister; 4th, Abbott Bros. Class 17—Ditto Straw Skep: 1st, Neighbour and Son; 2nd, Wm. Sells; 3rd, Wm. Young. Class 18—Ditto Supers for general use in an apiary: 1st and 2nd, Abbott Bros.; 3rd, John Hall. Class 19—For best Honey Extractor, portability and cheapness considered: 1st, Abbott Bros.; 2nd, Wm. Young. Class 20—For best and most complete collection of Hives, Bee Furniture, and Apiculturist's Necessaries: 1st, Wm. Young; 2nd, R. R. Godfrey. Class 21—For best and most interesting collection of Natural Objects, Models, or Diagrams connected with apiculture, and illustrating the natural history and economy of the honey bee: 1st, D. J. Godfrey,; 2nd, John Hunter. Class 22—For best and largest display of Honey-producing Plants, in a dried state or otherwise, with a card giving particulars of interest to bee-keepers: No competition.

BEE AND FLOWER SHOW AT WESTBURY-ON-TRYM.

(*From the Bristol Mercury, August* 22.)

A very successful venture in the way of a bee and flower show in connexion with the Westbury-on-Trym Bee-keepers' Association, attracted a large number of visitors yesterday to the grounds attached to Cote Bank, Westbury-on-Trym, kindly lent for the occasion by Mr. Thomas Pease. The Bee-keepers' Association was started some twelve months ago, for the purpose of promoting bee culture and rendering popular the modern plan of taking the honey from the hive without killing the bees.

The flower show was almost a novelty at Westbury, but the exhibition of bees and bee furniture was still more so, and carried with it a special interest, and it embraced a good proportion of the entries. Mr. Abbott, of Southall, a well-known bee-master, entered into the competition, and very kindly gave an interesting exposition of the manipulation of bees. His hives and bee furniture and many ingenious appliances for the manipulation of bees attracted deserved attention. Mr. Chaplin of Westbury-on-Trym, who took the first prize for the most complete hive with moveable comb, and first for the cheapest and most perfect cottagers' hive, contributed a variety of bee produce and hives. The Rev. F. Warre, of Corsham, sent a number of supers, as also did Mr. Robert Manfield, of Corsham. Mr. Perrett, of Weston-super-Mare, was amongst the other contributors, besides several members of the Bee-keepers' Association. The varieties of hives, from the most primitive to those of a most modern type, with bar-frames, and furniture, in the shape of india-rubber gloves, slingers for extracting the honey by means of centrifugal force with a simple machine exhibited by Abbott Bros., greatly interested the spectators. One contributor sent a home-made hive, readily converted in a simple way from an American cheese-box — suggestive of Bristol's new trade with our Transatlantic cousins—Nutt's collateral system, the super system, the nadir system of hives, could be inspected at will; but that which most interested the numerous visitors was an open competition in the manipulation of bees, the work being done before the visitors. For this purpose a tent had been erected, having one of its sides constructed entirely of thin gauze to protect the visitors, who, standing within the tent, could see all the manipulation of the bees as they were dexterously transferred from one hive to another outside the gauze. Mr. Abbott was to have competed, but his first manipulation so interested the auditors that he generously gave up his share in the contest, and thoroughly won the attention of the spectators in the process of bee manipulation. Without the protection of the gauze veil, he handled some hundreds of bees with impunity, and afterwards explained to the visitors that the secret lay in so thoroughly frightening the bees with tobacco smoke that, in accordance with their custom when alarmed, they rushed to the honey and gorged themselves to repletion in order to prepare for any emergency, and when in this condition they might be handled with impunity. He astonished some of the visitors by taking handfuls of them without the slightest apprehension or chance of a 'sting.' The test of the competition consisted in driving the bees from one straw hive to another, and transferring the comb and bees to a bar-frame hive. It was intended, also, that the honey should be extracted, but as time did not admit of this it was agreed to forego this part of the conditions. The competitors were Messrs. Chaplin, of Westbury-on-Trym, and Perrett, of Weston-super-Mare. Mr. Perrett did the work in twenty-four minutes, and Mr. Chaplin in thirty-two and a half minutes, and the former was therefore awarded the prize, the judges considering that the work, apart from the time condition, was equal. The Westbury band, stationed in the grounds, played a popular selection of music during the afternoon and evening, and till the rain came down, between six and seven o'clock, the visitors had nothing to mar the pleasure of a thoroughly enjoyable *fête*, which, indeed, was so successful that we understand it will be made an annual one.

The judges of the Bee-keepers' Association were—Messrs. Jenner-Fust, jun., of Falfield, and Robert Manfield, of Corsham.

The following was the Prize List:—

Hives.—Best complete hive on the moveable comb principle—1st, Mr. Chaplin; 2nd and 3rd, Abbott Bros. Best and most economical hive on the moveable comb principle, for cottagers' use—1st, Mr. Chaplin; 2nd, Abbott Bros. Best hive for observatory purposes, combs to be visible on both sides—1st, Abbott Bros. Best hive for storifying purposes—1st, Abbott Bros.

Bees.—Best stock of Ligurian bees—1st, Abbott Bros.; 2nd, Mr. J. Howes. Best stock of English bees—1st, Mr. Chaplin.

Honey.—Largest and best harvest of honey in the comb from one apiary under any system—2nd, Mr. J. Howes. Best collection of honey in the comb from one hive under any system—2nd, Mr. Chaplin. Best glass super of honey—1st, Mr. George Bushell. Best sectional super of honey—1st, Mr. G. P. Fuller. Best wood, or wood in combination with glass or straw, super of honey—1st, Mr. Chaplin. Best glass of extracted or run honey—1st, Miss F. Perrett; 2nd, Mr. A. L. Perrett. Best two bars of honey taken from any one bar-frame hive—1st, Mr. A. L. Perrett; 2nd, Mr. Ormston Pease: 3rd, Mr. Chaplin and Mr. Carpenter, equal.

Miscellaneous.—Best cake of bees'-wax, not less than 2lb. in weight—2nd, Mr. Chaplin. Best and largest collection of hives, bee furniture, bee gear, and appurtenances (no two articles to be alike)—1st, Abbott Bros.; 2nd, Mr. Chaplin. Best honey extractor, suitable for ladies or cottagers—1st, Abbott Bros. Best bee feeder—1st, Abbott Bros. Best and largest collection of bee flowers, dried or fresh, with names and dates of flowering—1st, Mr. E. T. Hill; 2nd, Mr. J. Howes. Any new invention calculated, in the opinion of the judges, to advance the culture of bees—1st, Abbott Bros. Best and most interesting collection of natural objects illustrating the natural history and economy of the honey bee—Mr. Chaplin. Special prize, given by Mr. Ormston Pease, for the best manipulation of bees, the tests to be decided by the judges—Mr. A. Perrett, of Weston-super-Mare.

DEVON AND EXETER BEE AND HONEY SHOW.

The Devon and Exeter Bee-keepers' Association held their second exhibition of bees, honey, hives, and bee furniture on the lawn in front of Northernay House, the residence of Mrs. Carr. A better place could not have been chosen, for, though practically on Northernay itself, it was at a sufficient distance from the flower tents to enable those who make bees their study to examine the show in comparative quiet and freedom from pressure; while the fact that their tent was pitched on private ground enabled the committee to levy a separate toll for the benefit of the Association, which they could hardly do while out in the open as on the last occasion. Mrs. Carr has earned the gratitude of the Devonshire Bee-keepers' Association by her kindness. Perhaps she will remember that gratitude is a sense of favours to come as well as of favours already bestowed. The objects of the Society, which was formed in 1875, are to encourage bee-culture in the county: to diffuse information as to the best method of obtaining and disposing of the produce of bees; to advocate humanity to the bee itself; to encourage improvements in the construction of hives and to stimulate inventions of apparatuses calculated to be of service in the apiary; to arrange for the delivery of popular lectures on the management of bees; and, finally, to enable members to obtain bees and bee furniture at cheap rates. That the organization is appreciated by local bee-keepers is evident from the list of members, and there can be no difference of opinion as to the good it is calculated to do. The keeping of bees has been shown to be a profitable as well as interesting pastime. The cheapness of the materials required: a wooden hive, containing all that is necessary to commence on a small scale, can be bought for a few shillings —should place it within reach of all who live in localities where bees can find food; and if they can thrive in the heart of London, any place would seem suitable. Cottagers living in country districts, and working-men dwelling on the skirts of our large towns, would therefore find in bee-keeping a source of wholesome recreation and substantial profit; and if a more general interest in the matter on their part can be awakened by means of such exhibitions as that on Northernay to-day the gain to society in many ways would be very great. The show was a very gratifying one. There was not so large a number of competitors as might have been anticipated from the value of the prizes offered, but this is accounted for by the fact that the season of 1878 has been rather a bad one for apiarists. Of course the effect of an unfavourable season would be seen in the diminished production of honey; and it was in the specimens of hive produce that the show was weak. Of hives and bee furniture generally there was a very interesting display. The President for the year (Mr. W. H. Ellis) offered a richly-chased 'entomological' vase, value 5*l.*, as a prize for the most perfect bar-frame hive (to include cover), and this was won by Messrs. Abbott, Bros., the well-known makers of hives and bee-furniture, of Southall, London. Messrs. Abbott in former years carried all before them at bee shows with their 'Standard' hive, which won first prizes wherever exhibited. This year they have eclipsed themselves by bringing out a 'Combination' hive, in which are included all the features of other hives and some specialties of its own, and it is this which has won the cup to-day. One of the features of the 'Combination' is that it positively prevents swarming; and it is said to be the only hive capable of 'supering' and 'nadiring,' while it can be extended to almost any size or reduced to the smallest dimensions. In winter the bees are enclosed in a separate hive within the main body-box, and in the summer the body-box is available for the reception of the swarm. Mr. Griffin, the secretary, was awarded second prize for a very ingeniously made and convenient hive; and the third fell to Mr. Chaplin, of Westbury-on-Trym, who in a show held in his native town recently won first in competition with Messrs. Abbott. The first prize for hives constructed for observation purposes, exhibiting combs on both sides, was also awarded to Messrs. Abbott, Mr. G. M. Ford taking second. The Southall firm also took other first prizes for bee furniture, including that for the best collection of hives, &c., in which class Mr. Griffin was again second to him. Messrs. Abbott were awarded an extra prize for a driving apparatus and for a quilt for use instead of a board at the top of a hive; and Mr. R. Iliffe, of Hinckley, near Leicester, received a similar acknowledgment of the merit of his apparatus for making foundation combs, the object of which is to secure that the combs shall be built straight.

Both of the first prizes for honey in comb, open to members (best harvest from one stock, and best super) were taken by Mr. G. M. Walsh, whose harvest weighed 32 lbs. nett. To Mr. Wm. Griffin was awarded the silver medal of the British Bee-keepers' Association for single super. Mr. Griffin's super weighed 30 lbs. nett, and the combs were remarkably straight. He also won the prize offered by the Dawlish Bee Club, and beat Mr. Walsh by his sample of bees' wax.

The cottagers came forward in capital style. In these classes Mrs. Lake showed the best harvest of honey in the comb; it was in a common straw hive, and weighed 22 lbs. That which took second honour was contained in a bell glass, and was a very creditable sample. In this connexion reference may be made to the sectional super shown by Mr. James Lee, and which was awarded the prize for the cheapest and best super for general use. In this super the comb is built in little boxes, which may be divided, taken out, and packed for sending to market as easily as a pot of jam. Each super contains sixteen of these boxes, and is sold for half-a-crown!

The arrangements for the show were most efficiently made by Mr. W. N. Griffin, the secretary of the Association; and the duties of judges were discharged by Messrs. S. B. Fox, Admiral R. Norman, and Mr. W. H. Walsh, of Rockbeare House.

Prize List.

For Members Only.—Honey.—For the largest and best harvest of honey in the comb from one stock of bees; under any system or combination of system—1, 1*l.* 10*s.*, Mr. G. N. Walsh. For the best super of honey in the comb, wood, glass, or straw, or any combination of the above materials—1st, 1*l.*, Mr. Walsh; 2nd, 15*s.*, Mr. Prideaux. Offered by the British Bee-keepers' Association for the best and heaviest single super of honey in the comb—1st, silver medal, Mr. W. N. Griffin. Offered by the Dawlish Bee Club, and to be competed for by those who were members of that Society during 1877. For the largest and best harvest of honey in the comb from one stock of bees, and gathered during the present year—1st, 18*s.*, Mr. W. N. Griffin. For the best sample of bees' wax in cakes of not less than one pound —1st, 5*s.*, Mr. Griffin; 2nd, 2*s.* 6*d.*, Mr. Walsh.

Cottagers' Class.—Members only. Open only to *bonâ fide* cottagers. For the largest and best harvest of honey in the comb from one stock, without destroying the bees—1st, 10*s.*, Mrs. Lake; 2nd, 7*s.* 6*d.*, Mrs. Roberts.

Open Competition.—For the most perfect bar-frame hive, to include cover.—1st, handsome vase, value 5*l.*, given by the President, Messrs. Abbott Bros., London; 2nd, 15*s.*, W. N. Griffin. For the best and cheapest complete hive, on the bar-frame principle, suitable to cottagers—1st, 10*s.* Mr. J. Lee, Bagshot; 2nd, certificate, Messrs. Abbott Bros. For the best and cheapest super for general use—1st, 10*s.*, J. Lee. For the best honey extractor—1st, 10*s.*, Messrs. Abbott Bros. For the best

and largest collection of hives, bee furniture, bee gear, and apiculturist necessaries, no two articles to be alike—1st, 1*l.* and first-class certificate.—*Exeter Evening Express, August* 23.

THE DORCHESTER BEE SHOW.

In its report of the Dorchester Flower Show held on August 22nd, the *Western Gazette* says:—"In addition to the tents already referred to, there was one set apart for the use of the Dorsetshire Bee-keepers' Association, and it was crowded with exhibits connected with apiculture. There were supers of honeycomb which, for size, colour, and regularity of construction, would have stood well in competition with anything to be found on the other side of the Tweed; while for quality, the cullings from the Dorset clover could scarcely have been beaten by the far-famed nectar of Narbonne. The exhibits sent by Mr. W. H. Dunman, of Troytown (one of which weighed 80 lbs. nett), Mr. Antell, of Puddletown (with a super of 70 lbs.), Mr. T. Stickland, of Puddletown (his best being 51 lbs.), would have stood well in any competition. The cottagers of the county did not take a very prominent part in the show, and the members of the Association will have to carry on their work for some years before they can hope to see bee-keeping general amongst the labouring classes. Judging from one of the paragraphs in their last report, they are fully aware of this, for the document named concludes as follows:—"The committee feel that their work is only just begun, but they rely upon the well-known liberality of the inhabitants of the county for the means wherewith to carry it on. They believe that the result of a more general introduction of bee-culture will be the same in Dorset as it has been elsewhere—namely, a larger supply of honey, which is now looked upon as a luxury, and a consequent reduction in price. The public will thus be benefited, while a source of additional income will be opened up for intelligent cottagers." There can be little doubt that there has been considerable improvement in the methods of securing surplus honey during the last few years; and such exhibitions as the one now under notice must inevitably have a most beneficial influence upon local bee-keepers. The large assortment of hives and apparatus exhibited by Mr. James Lee, of Bagshot; Messrs. Abbott, Bros., Southall, and others, must certainly supply a stock of valuable "notions" to Dorset manufacturers. During the afternoon, Mr. James Abbott, of the School of Apiculture, Southall, showed how easily bees could be handled by those who have the courage and coolness necessary for the work. He turned up old skeps with the most perfect indifference to the thousands of bees which swarmed around him; cut out the combs, and transferred them to the more modern bar-framed hives, just as though the bees were stingless. Hundreds of persons witnessed his manipulations with pleasure and wonder.'

The following is a list of the awards:—

Members' Classes.—Honey.—For members of the Dorsetshire Bee-keepers' Association, residents in the county of Dorset, or within six miles of its confines, only.—For the largest and best exhibition of super honey in comb, gathered by one stock of bees—1*l.*, Mr. W. H. Dunman, jun., Troytown, 80 lbs.; 15*s.*, Mr. John Antell, Puddletown, 77 lbs.; 10*s.* Mr. J. Antell, 58¾ lbs.; 7*s.* 6*d.* 5*s.* and 2*s.* 6*d.*, Mr. T. Stickland, Puddletown, with supers weighing 51 lbs., 47 lbs., and 13 lbs. respectively; highly commended, Rev. G. H. Wynne, Whitchurch, 41 lbs. For the largest and best harvest of super honey in comb, the produce of one apiary—1*l.*, Mr. T. Stickland, 235 lbs. from ten supers; 10*s.*, Mr. J. Antell, 244½ lbs. (not quite so perfect as the first) twelve supers; 5*s.*, Mr. W. H. Dunman, jun., 195 lbs. eleven supers. For the best exhibition of run or extracted honey in glasses; 15*s.* and 10*s.*, Rev. G. H. Wynne; 7*s.* 6*d.*, Mr. T. Stickland; 5*s.*, Mr. W. H. Dunman, jun.; 2*s.* 6*d.*, Mr. C. E. Norton, Shaftesbury. For the best observatory hive made by the exhibitor, stocked with combs and bees—1*l.*, Mr. Vatcher, Dorchester; 10*s.*, Mr. J. Brown, Maiden Newton; extra, Mr. M. H. Tilley, Dorchester.

Cottagers' Classes.—Honey and Skeps.—For *bonâ fide* cottagers residing in the county of Dorset.—Best exhibition of super honey in comb, gathered by one stock of bees—10*s.*, John Sherring, Puddletown, 32 lbs.; 7*s.* 6*d.*, George Burden, Puddletown, 30 lbs.; 5*s.*, James Bridle, Frampton; 2*s.* 6*d.*, Richard Legg, Compton Abbas; extra, 2*s.* 6*d.*, Henry Bowles, Frampton. Best dish of honey in comb, gathered by one stock of bees—5*s.*, George Burden. Exhibition of run or extracted honey, in glasses—10*s.*, G. Burden; 7*s.* 6*d.*, Jane Legg, Puddletown; 5*s.*, James Woodland, Troytown; 2*s.* 6*d.*, R. Legg. Bees'-wax—5*s.*, Jane Legg; 2*s.* 6*d.*, J. Bridle. Straw skep, with super, made by exhibitor—10*s.* and 5*s.*, R. Legg. To the cottager gaining the greatest number of prizes, a complete bar-frame hive, given by Mr. James Lee, Bagshot—R. Legg.

Open Classes.

Honey.—Best exhibition of super honey in comb, from a single stock of bees—1*l.* 10*s.*, Mr. W. H. Dunman, jun.; 1*l.*, Mr. J. Antell.

Hives, &c.—Largest and best collection of hives and apicultural appliances—2*l.* and 1*l.*, Mr. James Lee, Windlesham, Bagshot, Surrey. Best and cheapest bar-frame hive, with supers complete, and ready for immediate use—1*l.*, Messrs. Abbott, Bros., Southall, Middlesex; 10*s.*, Mr. J. Lee. Best straw skep with super, for general use; 10*s.*, Mr. C. W. Downes, Blandford. Best super for general use—10*s.*, Mr. J. Lee. Best honey extractor for general use—10*s.*, Messrs. Abbott, Bros.

The amount taken at the door of the bee tent was about 13*l.* A large number of free tickets were, of course, issued to subscribers and exhibitors. The interest manifested in the show was greater than on any former occasion, and the indefatigable honorary secretary (Mr. C. E. Norton), Mr. J. Abbott, and the members of the committee were plied with questions almost incessantly. The observatory hives of Messrs. Vatcher, Tilley, and Brown, were sources of great attraction. The tents were large and admirably arranged; the gauze in front of the fore-court was well protected by stout stall-boards, and the manipulator was free from all interference, only two or three members of the committee to help do the talking being admitted to the enclosure. On the whole the show was a most complete success, and the greatest credit is due to Mr. M. H. Tilley and Mr. Vatcher, of Dorchester, for the perfection of the arrangements and the zeal they have displayed in the cause of apiculture.

It should be stated that the members of the Dorset Association rendered assistance at sundry village shows, in addition to holding an annual exhibition. At Okeford Fitzpaine they offered prizes, and Mr. Norton and Mr. White (one of the committee) did some driving, uniting, and extracting. At Fontmell Parva Cottagers' Flower Show (the area of which includes twelve villages) several prizes were offered for honey, hives, supers, &c.

BRITISH BEE-KEEPERS' ASSOCIATION.

A general meeting of the members was held in the French annexe at the Royal Horticultural Society's Gardens, on Wednesday, August 7th, at five o'clock. There was a good attendance of members, including the Hon. and Rev. H. Bligh, Rev. J. D. Glennie, Rev. H. R. Pool (Hon. Sec.), W. O'B. Glennie (Treasurer), and Messrs. Stewart, Minson, Bennett, Godfrey, Abbott, J. G. Desborough, &c.

The Rev. H. Bligh proposed, and the Rev. J. L. Sisson seconded, that Mr. T. W. Cowan take the chair.

Carried unanimously.

The minutes of the last general meeting were read by the Secretary, from which it appeared that the chief business before the meeting was the revision of the rules and regulations of the Association. Mr. Cowan read a draft of the revised rules and regulations, and it was unanimously resolved, that these rules, with a copy of the old rules, should be inserted in the *Bee Journal* for September, for the purpose of eliciting a discussion thereon, and that a special general meeting of the members of the Association should be held on Monday, October 7, for the purpose of adopting new rules for the future government and management of the Association. On the proposition of the Rev. H. R. Peel it was unanimously resolved, that the election of the committee in the future should be by voting papers, in order that each member might have the opportunity of voting for the same. Mr. F. Lyon proposed, and Mr. F. H. Lemare seconded, 'That at a convenient time, previous to the expiring of office of the committee for the current year, the secretary shall write to those members who are eligible to serve, and ascertain from them as to whether they are willing to be put in nomination for election as members of the committee for the ensuing year.' (Carried unanimously.)

Mr. C. N. Abbott suggested that in all future exhibitions each exhibitor shall be required to supply hives and articles of bee furniture at the prices affixed to his exhibits, and failing to do so for three months in the succeeding year, should not be eligible to compete for three years. A long discussion ensued, in which several members took part. Mr. Bassano considered that Mr. Abbott's suggestion should only apply to those classes in which cheapness was an element of consideration.

Mr. Jackson considered that it would be most unfair to amateurs if they were debarred from carrying off a prize owing to their not being able to enter into such an undertaking as suggested by Mr. Abbott.

The Secretary considered that a price should be affixed to every exhibit entered for competition, in order that the catalogue might be complete, and the sales conducted with regularity. Eventually the Secretary was instructed to draw up a resolution upon this point, and submit it to the next general meeting.

REVISED RULES AND REGULATIONS OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

1. That the name of this Association be the BRITISH BEE-KEEPERS' ASSOCIATION.

2. That its objects shall be the encouragement, improvement, and advancement of bee culture in the United Kingdom, peculiarly as a means of bettering the condition of cottagers and the agricultural labouring classes, as well as the advocacy of humanity to the industrious labourer—the Honey Bee.

3. That the Association shall consist of a President, Vice-Presidents, Secretary, Treasurer, Ordinary and Honorary Members.

4. Subscribers of five shillings and upwards shall be members of the Association. Donors of five pounds and upwards shall be life members. Members shall be entitled to one vote for every five shillings subscribed. Life members shall be entitled to four votes for every donation of five pounds. Subscribers of one pound per annum and life members alone shall be eligible for election as members of the Committee.

5. Donors of Prizes of the value of one pound and upwards shall be Honorary Members for one year, being entitled to four votes in the election of the Committee, but not being eligible to serve upon the same.

6. That all subscriptions shall become due on the first day of January in each year, and if any subscription remain unpaid on day of following, the person not paying the same ceases to be a number until his arrears be paid.

7. That the management of the Association shall be conducted by a Committee of nine Members. The President, Vice-Presidents, Treasurer, and Secretary, to be *ex-officio* Members of the Committee, three to form a quorum, the Chairman to have a casting vote.

8. That the managing Committee shall be elected annually by voting papers, which the Secretary shall cause to be sent to each Member at least one month prior to the Annual General Meeting (which shall be held as early in each year as possible), together with a copy of the balance-sheet, the auditor's report of the preceding year, and the names and addresses of those Members who are eligible and willing to serve on the Committee for the ensuing year. The President, Vice-Presidents, Treasurer, and Secretary shall also be elected at this meeting, and questions of the government of the Association shall be discussed and resolved upon.

9. That each Member of the Association shall be entitled to give one vote for each Member of the Committee for every five shillings subscribed. No Member to have more than four votes. (See Rule 4.)

10. That the Committee shall have power to make and alter bye-laws, provided always they shall in no case contravene a rule made in general meeting.

11. That if the funds of the Association admit of it the Committee shall hold an Annual Apiarian Exhibition at a time and place they deem most suitable to the interest of the Association and its objects, and adopt such measures as they believe will most conduce to extend and improve a knowledge of bee-keeping throughout the United Kingdom.

12. That the Committee shall meet at least once in each month, and any three Members of the Committee may by a notice in writing to the Secretary require him to call a Committee Meeting within three days after receiving such notice.

13. That these Rules shall not be altered unless at a general or special meeting, which may be called by seven Members of the Committee, or at the written request of not less than twelve Members of the Association, the Secretary shall give each Member fourteen days' notice of the same, and state the object for which the Meeting is called. Additional Rules and Regulations required by circumstances not at variance with the foregoing Rules may be brought forward at any general Meeting.

14. That all propositions at any Meeting shall be disposed of by a show of hands, but a ballot may be demanded by a majority of the Members present.

RULES TO BE OBSERVED BY EXHIBITORS AT THE ASSOCIATION'S ANNUAL SHOW.

1. That all persons intending to exhibit shall return their entry forms (which shall be sent out with the Prize Lists) to the Secretary at least fifteen days previous to the Show, stating distinctly the number of entries in each class, the space which will be occupied by the articles exhibited, and the prices at which they will sell their exhibits.

2. That at the Exhibitions all articles exhibited must be *bonâ fide* the property of the exhibitor, and have been in his possession at least one month prior to the day of exhibition. All honey and wax exhibited must be the produce of his own bees during the current year. All exhibitors to whom prizes are awarded shall sign a declaration to the above effect (if required to do so), and should any infringement of this rule be discovered all awards shall be forfeited, and the person disqualified from exhibiting for three years.

3. That all exhibitors are required to state on their entry forms the price at which they will sell their exhibits, otherwise they will be labelled at the show, and entered in the catalogue *Not for Sale*.

4. That by a cottager shall be understood a mechanic or labourer in the employ of a master, and no cottager or artisan who has paid assistants shall be allowed to exhibit in the Cottagers' Classes.

5. That all articles intended to be exhibited shall be delivered carriage paid at the place of exhibition on the day before the show, and shall have affixed to them the names and addresses of the exhibitors.

6. That all articles exhibited shall be considered as intrusted to the care of the Committee from the time they are delivered at the place of the Exhibition until the close of the same, and no interference will be allowed with the exhibits during that time without the special permission of the Committee, who will take every care of them, but will not be responsible for any loss or damage that may occur.

7. That the judges be appointed by the Committee, and their decision be final in all cases. The judges shall not be allowed to enter the place of exhibition until summoned by the Committee.

8. That the judges shall have the power of refusing to make an award in the case of objects exhibited being in their opinion unworthy of a prize, and also to reward an extra or special prize to any exhibit which they think worthy of merit.

9. That no persons other than the Secretary and his assistants can be allowed on any pretence whatever to be present during the examination of the exhibits by the judges, except at the special invitation of the latter.

10. That a judge shall not be allowed to compete for a prize in any class in which he may be called upon to make an award.

11. That these rules be printed and supplied to all members and exhibitors, and that no Member or exhibitor be absolved from the effect of these Rules on any allegation of not having received them.

OLD RULES.

1. That the name of this Association be the BRITISH BEE-KEEPERS' ASSOCIATION.

2. That its objects shall be the encouragement, improvement, and advancement of bee culture in the United Kingdom, particularly as a means of bettering the condition of cottagers and the agricultural labouring classes, as well as the advocacy of humanity to the industrious labourer—the Honey Bee.

3. That the officers shall consist of a President, Vice-President, Secretary, Treasurer, and an acting Committee, three of whom shall form a quorum. The whole of whom shall hold office for one year, and be eligible for re-election.

4. That the management of the Association shall be vested in the Acting Committee, of which the Secretary and Treasurer shall be *ex-officio* members.

5. The annual subscription of members shall be not less than five shillings, due and payable on the first day of May.

6. The Committee shall cause to be holden an Annual Apiarian Exhibition, at a time and place they may deem most suitable to the interests of the Association and its objects; and adopt such measures as they believe will most conduce to extend and improve a knowledge of bee-keeping, so far as the funds of the Association will permit, provided always that they shall in no case contravene a Rule made in General Meeting.

7. That an ordinary General Meeting shall be holden once in each year, when the officers for the ensuing year shall be elected, and questions of government of the Association be discussed and resolved upon. An extraordinary General Meeting may be called by the Acting Committee at any time, and shall be called by the Secretary within fourteen days, upon receipt of a requisition signed by any thirty members, stating the nature of the business for which the General Meeting is to be called.

8. That as soon, and so far as the funds of the Association will permit, the Committee will endeavour to carry out the objects of the Association, by means of lectures, meetings, the circulation of suitable books, certificating and sending out experts as qualified teachers and examiners of apiaries, exhibition and circulation of hives, apiarian apparatus, &c., to spread a knowledge of all improvements and best possible methods of bee-keeping, and of the most profitable use and disposal of bee produce; also to establish a model apiary, and an apiarian museum and honey market, assist in the formation of provincial clubs affiliated with the Association, and generally to do all in their power for the advancement of APIARIAN SCIENCE.

THE CALEDONIAN APIARIAN SOCIETY.

The third meeting of the Caledonian Apiarian Society took place in Dumfries show ground on 1st August, 1878. On the motion of the Secretary Mr. Smith, of the *Dumfries Courier*, was called to the chair. Present, Messrs. Kennedy, Laughland, Paterson, Fenwick, Fowlis, Smith, Bentham, Young, Armstrong, Wilkie, Thomson, Muir, Templeton, Steele, Hutchison, Bennett, and others. The Secretary read the minutes of last meeting, which were duly confirmed. He stated that, so far as the Society had gone, this was by far the best show, and showed what could be done in three short years. This year being all the more remarkable by our having no English exhibits. In former years we had Messrs. Abbott and Neighbour with large exhibits, and last year Mr. Brice-Wilson with his wonderful Observatory Hive. Only one month ago this Committee felt rather perplexed when these gentlemen wrote, 'Our own show follows so quickly after yours it will be impossible for us to come forward.' But, thanks to our Scotch hive-makers, Messrs. Thomson of Blantyre, Steel of Foulis, Young of Perth, and Allan of Stewarton, our brethen across the Tweed will have to look well to their laurels if they intend to keep the lead in this department. Then, as to our display of honey, it equals, if not surpasses, any we have yet seen, thanks to our Dumfries friends for such excellent quality and quantity, and this brings us to the all-important part of our business: Are we to have a show or honey fair in September, as, while our Society aims at improving the methods of gaining honey, it must not neglect to find a market for the cottagers' honey. It was unanimously carried by the meeting that a honey fair should be held in Glasgow on the 12th of September, and the Secretary was instructed to carry out arrangements to make it a success. On the motion of Mr. Wilkie no prize for hives to be awarded at the honey fair. A vote of thanks to the Chairman brought the meeting to a close.

BEE EXHIBITIONS.

The *Nottingham and Midland Counties Daily Express* makes the following well-considered remarks:—

'The bee exhibitions recently held in Stamford and London show that the British Bee-keepers' Association has made some progress towards attaining the object with which it was formed. The progress is small, it is true, but the task which the Association has set itself is of a kind that is always difficult and tedious. It seeks to teach the British cottager how to manage bees with greater advantage to himself and with greater humanity to the little insect which in this country is generally treated with needless cruelty. In doing this the Association finds itself face to face with deeply-rooted prejudice, the result of ignorance which believes itself to be fully enlightened, and of traditional custom as venerable in age as it is reckless in heedless extravagance. The cottage bee-keeper of this country generally prides himself on his apiculture, and therefore resists enlightenment, and yet in most cases he manages his bees on precisely the same plan as that adopted by the woman who

cut open the goose to find the golden eggs. He yearly kills off a part of his stock of bees and takes their honey, when if he did but know it he might take the same amount of honey and yet save his bees to make him a double supply the following year. But by systematically killing his bees he throws away a source of wealth which if it were but harboured and cultivated would better his condition in life without labour and with but little trouble to himself. The value of the resource which is thus rejected may be estimated by the large imports of honey into this country from Germany and America. From the former country the exports of honey amount in value to over a half a million a year, the bulk of which is supplied from the apiaries of the peasantry. The German Government is so fully aware of the value of this resource to the agricultural working-classes, that every national schoolmaster is required to understand the most approved methods of apiculture in order that he may make it part of his duty to instruct the villagers with whom he is thrown how to manage bees in the most profitable manner. The large exports of honey prove the success with which this plan has been attended, and considering how easily apiculture may be learnt and how advantageous would be its extension amongst our agricultural labourers, we may hope to see the example set us by the German Government adopted by our Board of Education. We have many distinguished apiarians amongst us, but very few of them are cottagers; and it is one of the oldest of the many traditions which surround the bee-hive that the bee is the property of the poor man. We would gladly see the purpose of the Bee-keepers' Association realised by the increase of the useful knowledge which it is endeavouring to spread among the agricultural labourers of our country villages: if only they could be brought to see the importance of driving their bees instead of smothering them, the great obstacle to the spread of apiculture would be overcome. Bees are so prolific and increase in such 'swarming millions,' that if once this reform were adopted by the comparatively few bee-keepers amongst us, the growth of stocks would be so augmented that the British produce of honey would be doubled every year. There is no reason why we should draw our supply from abroad. Sufficient bee flora is found in this country to supply pasturage for a hundredfold more bee-hives than we can boast of at present. Directly the honey is drawn from a flower nature provides a fresh supply, and by systematically checking the increase of their bees our cottagers not only reject a profit to themselves, but leave one of nature's most delicious bounties to waste for want of gathering. There are other prejudices which our countrymen possess with regard to the management of their hives which, though of less importance, are not less difficult to remove. It is very generally believed that bees must be kept as warm as possible, especially in winter. Consequently we commonly see in cottage gardens hives covered with thick thatches of straw, which though picturesque, are most injurious to the little creatures within, for they harbour insects and are apt to keep the hive so warm in winter that the inmates are tempted out only to die instantly of cold. The more exposed the hives are in winter the better, for when the bees are cold they live in a state of torpor, eating none of their honey, which when they are thus managed may be withdrawn from them in greater quantities. The time, let us hope, is not far distant when 'the poor man's friend' will be too well understood by his master to be injured by mistaken kindness, or killed in ignorance of his worth. It needs but the acquirement of a little knowledge to teach the full value of this small insect, which, with more skilful management, would prove of material assistance to him in life, adding to his hard-earned wage without labour or expense, bringing an unbought blessing to his life, which neither any hoe, nor axe, nor crooked sickle is needed to bestow.'

Correspondence.

**** These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

A NEW IDEA.—HOT WATER LAID ON.

The present month has been very bad in our district, the heather is a fortnight later than usual; the early part of the month was very cold, and ever since the 10th constant and heavy rains. If I had not kept pipes filled with warm water round my large glass supers they would never have been filled. On August 19th a large glass globe, capable of holding 25 lbs. of honey, was perfectly empty. The heather was in bloom, but the bees would not work, but hung out; I then placed hot-water pipes round it, and the bees within five minutes took to it, and yesterday (the 23rd) it was three quarters full and some sealed up. With a week or ten days of moderately fine weather, and on strong hives I should be surprised if I did not get a super of twenty to twenty-five pounds filled when the heather is out, provided the glass supers are kept warm by hot water. I consider I have lost pounds of honey from not using hot-water pipes before now, as with them I am quite indifferent as to what the right temperature is. The pipes cost me ninepence a yard, and about six yards are placed round each large glass super; the pipes are filled with hot water early in the morning and about nine at night. The difference it makes to the bees working is marvellous; it should be seen to be believed. I am of opinion that when the supers are so warmed, the bees in their earnest desire to fill the super with comb, empty the stock hive of honey, that is, when honey is coming in.

I have a super (quite empty) of glass capable of holding more than thirty pounds. Hot-water pipes were placed round it yesterday, and if we can only get a few rays of sunshine per day, I shall be disappointed if it is not full by the show day on the 4th. Of course it will be impossible if the rain is continuous. H. J. W., *Camberley*.

P.S. I will guarantee with glass supers so warmed to get heavier supers than any made of wood or straw.

FUGGLE'S EUREKA HIVE.

The 'Eureka' hive manufactured by me (Herbert Fuggle, Brede, Sussex), and exhibited at the South Kensington Show on the 6th, 7th, and 8th August, 1878, but which did not arrive in time to be judged, is strongly made of 1 in. yellow deal, which answers in all respects as well as pine when the quilt is used. This hive consists of stock-box and ten frames the same size and shape as Abbott's celebrated Standard, and dummy; floor-board, super, consisting of five sections; and large flat-topped

roof, the eaves of which project 2½ in. all round, thus carrying water well off the sides of the hive. There is a large window inside of the hive, closed by a wooden door opening upwards. There is also a porch, a covered entrance, 4 in. in depth, protecting the entrance of the hive from wet. The size of entrance is regulated by triangular blocks, which rest on the floor-board, and by means of which the entrance can be adjusted to a nicety ; or by removing them altogether an entrance the entire width of hive can be obtained. There are no bottom rails to the frames, as I consider that they are nuisances and causing the loss of not less than eighty square inches of comb space in a ten-frame hive, and there is the great advantage in those hives that do not contain them that a swarm can be shaken right into the hive, a thing impossible in those hives the frames of which have bottom rails. The frames and super sections of this hive are fitted with wax-guides, and there is nothing complicated about it, but in actual use it will be found all that can be reasonably desired at the low price of 12*s*.—Herbert Fuggle.

MR. WATSON'S HIVE AND SUPERS AT STAMFORD SHOW.

The hives, &c., exhibited by me at the Stamford Show have been constructed in a semicircular form at the bottom, somewhat like the letter U, this in my opinion being the most suitable and best adapted for bees clustering. The tops are square, so that there is as much room for comb-building as in the ordinary hives. The entrance is carried from the front to the centre, and a moveable piece is here placed, so that the whole can be effectually cleaned out when required. The bottom is round, and forms double sides, thus giving it the advantage of having less cold air space, and consequently it is, in my opinion, much better adapted for breeding purposes than the square-bottomed ones.

I also exhibited two supers on the same principle, the one in the Amateur Class made of sections of circular paper, each set of sections being enclosed in a deal box. The one entered in Class 18 is made of red deal circular sections enclosed in a turned and moulded frame with glass divisions between each.

Having no means of knowing whether there is any merit in these exhibits, I should suggest that a competent person be selected by the committee to report on them, so that amateurs may have the advantage of sound practical advice, and so give them encouragement to compete in future shows.—T. E. Watson, *St. Peter's Hill, Grantham.*

SIMMINS' 'DIVISIONAL' HIVE.

As the above has already been described in the columns of this *Journal*, we cannot do better than just run over the principal features.

The frames are now made larger; the outside measure being 16 × 10 in., a nearer approach to the 'Standard' size, and their outside ends being 1½ in. wide, are put on in reverse position, to allow both sides of the comb to go close against the cage of the extractor: the top and bottom rails are the usual width. There is a moveable front and back board besides the ten frames, and the whole are kept firmly together by a simple wedge at the back, so that not a single frame can swing, or move from its place.

The main advantage of the hive is that it can be used with either six, eight, or ten frames; either number forming a completely closed-up hive, as the wedge can be moved forward when any frames are taken out.

A stock being wintered with six or seven frames may have its combs gradually returned in spring according as the bees get strong enough to cover more space. Unlike the dummy used in many bar-frame hives, the back-board fits close all round, so that there is no loss of heat when the working space is reduced.

The hive was exhibited at South Kensington with a sectional nadir, but it can be worked with sectional supers, and also on the collateral principle. The end of the front sections is covered with a piece of zinc to exclude queen and drones (with a ⅜ in. space between it and front wall of nadir) and through which the bees have to pass after coming from the hive by two wide slots cut in adapting floor-board just inside of entrance. There is also an entrance at front of nadir, opening into the said ⅜ in. space. The floor-board proper is placed under nadir while it is being worked.

The hive has no legs, but a simple stand can be supplied at little cost. The sliding doors cannot fall out when the hive is lifted off its floor-board, as they are grooved into the under-side of porch. The hive stands in a neat outer case and roof; the ventilating holes being bee-traps, by which any imprisoned bees may make their escape.

The frames are strongly and neatly dovetailed, and made of best seasoned pine, and the outer case of deal well painted. Wax-guides are affixed throughout to ensure straight combs. The price complete is 40*s*., and can be obtained of the inventor, Samuel Simmins, The Apiaries, Crawley, Sussex.

The above was awarded certificate of merit at South Kensington by the British Bee-keepers' Association, for a hive for general use on an entirely new principle.—S. Simmins, *Crawley, Aug.* 23, 1878.

THE ECLECTIC BEE-HIVE.*

The brood-chamber of this hive is of the usual kind, and contains, when the side compartments are closed, ten frames; on removing the dummies another frame is added. The side compartments are to be opened for side storing when the flow of honey commences, thus giving facility during the next week or two of handling the brood-frames for extracting, cutting out royal cells, &c. When swarming is in this way controlled, supers may also be set over the brood frames, thus with the side compartments giving accommodation for upwards

* This hive arrived too late for exhibition at the South Kensington Show.—R. S.

of 70lbs. of super-comb. As the honey season draws to a close, the side compartments may necessarily be shut off, and any unfinished sections collected on the top where they have the best chance of being completed. When all supers are removed the hive may be prepared for wintering by filling up the sides and top with some warm, dry material. The stand is meant to rest on a dry bed of sawdust, ashes, or gravel, and allows the falling bees easily to regain the hive. It also serves as a receptacle for spare frame, drummer, feeder, honey-knife, &c.

My other exhibits at the South Kensington Show were a honey-extractor, which was fully described in *B. B. J.* for February; a cottager's hive, double-walled, and of the Woodbury pattern. The supers shown were Novice's 116 sections, boxes 'dove-tailed.'—R. STEELE.

MR. BRETT'S HIVE.

EXHIBITED AT GRANTHAM.

Is made of a size to suit the requirements of the district, a swarm hereabouts seldom filling a larger hive the first season. It consists of a body box 15 in. by 14½ in. by 9 in., made of inch deal, containing nine frames fitted with floor-board, adaptor, and roof sufficiently high to contain supers. Its low price (10s.) for a hive complete in itself, should specially recommend it for cottagers' use.

EXTRAORDINARY OBSERVATORY HIVE.

At the late Lincolnshire Bee-Keepers' Show at Stamford, there was exhibited by the Rev. Edward Holmes of Wakerly Rectory, Stamford, one of the most remarkable observatory hives, stocked with bees, that it has ever been our good fortune to take cognisance of. It was a unicomb (?) hive containing four frames of Woodbury type; the bees without any assistance filled them all with comb, and stored two of them with honey of virgin purity, the third being nearly filled, and the fourth partly, both the latter having an admixture of brood and pollen cells. It was the surprise of the day, and we trust the reverend exhibitor will give full particulars of its origin and progress. The puzzle is how the few bees that such a hive could contain, supplemented by so few young bees as the small quantity of brood-comb indicated to have been produced, could have performed the wonderful work unassisted.—ED. *B. B. J.*

PLASTER CAST AND DIPPING-BATH,

FOR MAKING WORKER-COMB FOUNDATIONS.

The following is a description of the above apparatus, which obtained a prize-medal at the British Bee-keepers' Association's great show held at South Kensington, August 6, 7, and 8th, 1878.

The dipping-bath is vertical, and like a glue-kettle, consists of two cases, inner and outer; one for hot water, the other for melted wax. The outside case is 17 in. long, 11 in. deep, and 4 in. wide. It has a handle at each end, and a small hook which fits on to the end of the inside case to hold it in position when it is immersed in hot water. The inside case is 15½ in. long, 10 in. deep, and 1½ in. wide; it has a flange which fits over the side of the outer case in the same manner as a glue-kettle is made. The cast is 15 in. long, 9 in. deep, with two hooks and a wire handle to suspend it during the operation of sheet-making. The inventor would direct attention to the fact that the cast has impressions on both its sides, so that two sheets of comb-foundation can be made at one time. If a cast with impressions on one side only was used, the wax adhering to the unimpressed side would require to be re-melted each time the operation of dipping was repeated. It may be objected that from the size of the case a large quantity of wax would be required before dipping could be successfully performed. But by half-filling the inside case with boiling water 7 or 8 ounces of melted wax is sufficient to enable any one to begin sheet-making by the process above described. The wax being on the surface of the water will adhere to the cast, and the sheet will be made before the cast comes into contact with the water. The advantage gained by the use of this apparatus are (1) sheets are more quickly made than is possible by the brushing process. Sixty sheets can be made in an hour. (2) Cleanliness. The operator does not get his clothes splashed with the wax flying from the brush. (3) The sheets are better than when made by brushing, as they are perfectly even throughout. It gives to the bee-keeper the great advantage of being able to profitably use his own wax instead of selling it to a disadvantage.—RICHARD ILIFFE, *New Street, Hinckley.*

MR. LING'S HIVE.

In accepting your invitation by circular to give a descriptive character of the hive shown by me at the South Kensington Show, permit me to say that it was returned to me smashed, without the package in which it was sent to the exhibition, but ought to have been properly packed in the same when returned. How unkind and ungrateful to be treated thus! I am sure the Association amply paid their menials to pack the goods (to be returned to their owners) well, so as to contend with the 'knocking about' on the rail, but I suppose I must (under the circumstances) think myself lucky to get the hive back at all. But, what a determent to the advancement of apiculture! for when an amateur wishes to put his ideas and views before the bee-keeping public and his goods are uncared for, it is very discouraging, and tends to make one keep his notions to himself, because I am not a professed hive-maker, or dealer in bee furniture, and could not spare the time to attend the show the whole time, but merely made the hive as the old lady said by her son who made the fiddle out of his own head, and had wood enough left for another. It is not altogether the prize one wishes to gain, but more particularly the amelioration of bee culture. The principal feature in my hive was moveable frames by means of sliding, the frames are suspended on adapter zinc runners, which exclude the drones and queen from the supers, and so dispenses with the adapter-board, which

is inconvenient to remove when a hive is supered. It is an established fact, that when a hive is once supered, the supers ought to remain undisturbed until they are ready to remove, and in the generality of bar-framed hives the frames cannot be conveniently taken away when the hives are supered, and it was that which induced me to construct the sliding frame to slide out endways; and also to prevent the crushing I have seen of the bees, but with the sliding frames I defy the life of one bee to be taken untimely. With regard to the reviewing of the goods at the show I presume the judges are gentlemen thoroughly conversant with all kinds of bee furniture and bee life, and having read your medullary article on judging, which appeared in your last issue, it is for them to report and render praise to whom it is due. Before concluding my long letter I will speak with regard to the past honey season which has terminated in Essex for 1878; and, take it on the whole, we ought to give all possible praise and thanksgiving to the Great Giver of all good things.

One of my swarms weighed 10 lbs. of live bees, and they have brought me 35 lbs. of honey, and from another hive I have taken two boxes weighing 31 lbs. These I mention as fair samples, which will be far better to read in your Journal than the murmurings of some of your correspondents of July, '77; which, after all, are no use, as it is beyond the power of man to control the elements.

I have been trying to put a stop to the inhuman practice of killing bees by sulphur, and from one place I brought home the bees from eight skeps which were doomed to destruction, and I am steadily and regularly feeding, and by uniting them have made four good strong stocks which, with the others, have made my little apiary '*Multum in parvo*,' and can now 'settle down' with the hopes of another good season. You will pardon me for encroaching upon your time, as I have written a good deal of matter which I leave for your careful consideration and perusal.—DAVID LING, *Rochford*.

NEW BEE VEIL.

MANUFACTURER'S DESCRIPTION.

Every one must have experienced the discomfort of the ordinary bee-veils, which are not only stiflingly hot, but are difficult to see through, and are really of little protection, especially in a wind, as if a fold happens to touch any part of the face or ears it is very likely to be pinned thereto by a sting.

The proprietor of 'Dr. Pine's Lotion' exhibited a veil of his invention constructed of wirecloth, woven specially for the purpose, of wire so fine as to be almost invisible when worn, and weighing only one ounce. Being stiff, it cannot touch the face or ears, and the breath passes freely through the open mesh, thus giving protection without discomfort. A strip of muslin with an elastic band fits bee-tight round the hat, and a curtain tucks inside the coat. They were priced at 2*s*. each, at which price there was a brisk demand for them. Strips of wirecloth, with which any lady can make the veils, were freely sold at 1*s*. each.—EXHIBIT 178, *South Kensington*.

DO BEES MAKE HONEY?

I never had any doubt on the subject myself, but wandering through the Horticultural Gardens at the late very interesting Bee Show, I happened to overhear a gentleman, with whom I was unacquainted, make a reply to a lady, who in the course of some inquiries used the phrase 'bees make honey.' The reply was given, in tones of more asperity than courtesy, that bees do *not* make honey, they only collect it. Though I had never given the subject any consideration, it struck me at once that bees certainly do make honey in the same degree as men make soap, and in a more exact sense than we can be said to make tea. It must surely be allowed that except for the *making* of the bees there would be no honey. I would ask the gentleman, who received my suggestion with some impatience, not unmixed with scorn, whether he or any one else could extract an ounce of honey from twenty tons of lime-blossom? I do not know whether or not he could extract any quantity of syrup from it, but I am quite sure he could not produce any liquid which could be called honey. If this is the case, I maintain that bees collect the syrup and make the honey and the wax, as much as a man collects fat but makes soap. My anonymous opponent also denied my assertion that bees made honey from sugar; but I am at a loss to know in what respect sugar is less honey when the bees have worked upon it than other vegetable secretion? The only difference that I can see between the secretion of the sugar-cane and the secretion of the lime-blossom, is that the plant (I believe) does its work in a different way. That sugar-honey is a very different thing from blossom-honey I am well aware, but when stored and sealed by bees, I am inclined to think (though I never tasted it) that it would have very much the flavour, though quite inferior, to blossom-honey. It appears to me to be more reasonable to say that men do not make hives, they only collect straw or wood, than to say that bees do not make honey, they only collect it. This will probably meet the eye of the gentleman I had the pleasure of speaking with on the subject at the Horticultural Gardens; and if I am wrong I shall be only too glad to be set right, as I hold that the sole end of discussion is the elucidation of truth.—F. S. E., *Epsom*.

HONEY HARVEST OBTAINED FROM STEWARTON HIVES IN 1878.

From the report made in the July number of the *British Bee Journal* I infer that the honey season in many parts of the country (especially Scotland) has been more productive than that which we have experienced in this district, where it has perhaps yielded an average harvest, but nothing in comparison with some of its predecessors. Up to the 21st of June I do not believe that there was a single cell of sealed honey of the current season in any of my hives. The weather then became much more favourable; but a good deal of the honey first stored was obtained from honeydew, which spoiled the colour of the first supers. Subsequently, a fair

amount of very fine honey was collected, and the upper supers are all that could be desired. I removed the supers from my two storified Stewartons at the end of July. One yielded 57lb., the other 53lb. of virgin honeycomb. A neighbour's Stewarton, stocked last summer, filled three supers with fully 60lb. of fine honeycomb; and a swarm of my own of the current season, housed in two extra-large Stewarton boxes (*i.e.* 16 in. internal diameter by 7 in. deep), filled their stock-boxes, and supplied me with 17½ lb. of splendid super honeycomb.

It is satisfactory to be able to record that there was not a single cell stained with either brood or pollen in any one of these supers (ten in all), which, with the experience of four consecutive summers, demonstrates that the employment of perforated zinc to prevent the queen from breeding in the supers is quite unnecessary where the Stewarton system is properly carried out.

One colony has in four consecutive years yielded the following harvests:—1875, 27 lb.; 1876, 150 lb.; 1877, 63 lb.; 1878, 57 lb.—giving an average of 74 lb. All my stocks are very abundantly supplied with provision for their winter consumption.

A stock which had been rather long without a queen had so completely filled their hive with honey that hardly a vacant cell could be found for the young queen to lay in when she arrived at maturity. To remedy this I sliced off the lids of the cells in the four central combs, and with a 'Little Wonder' speedily extracted a lot of very nice honey, and then returned the combs to the hives. In about a fortnight I had the gratification of finding all the four combs completely filled with brood.—J. E. Briscoe, *Albrighton, Wolverhampton.*

PREVENTION OF DESERTION BY SWARMS.

I shall feel obliged if you will be kind enough in the next month's *B. B. Journal* to give the reason (if there is any) for the following circumstance, which has occurred twice this season with me, viz.—Swarms, or driven stocks, leaving the hives they are put into, after taking to them, apparently with the intention of staying.

On the 24th June I had two swarms, which after unsuccessfully trying to find one of the queens, I united, the weight of both being 10lbs.; they seemed to take to the hive the following day satisfactorily, but on the 26th, the day but one after swarming, they left the hive and swarmed a second time. We returned them to the hive; they then remained, since which they have done remarkably well. On the 5th inst. I drove two stocks, took one of the queens out, and united them. During the first two days they seemed to be contented, and built some comb; but the following day, on the 8th inst., they left the hive, unobserved, and were lost.

In both cases they were put into empty hives; but syrup was given to them; there was no fighting, nor any difficulty amongst them about uniting together. Wishing to avoid such mishaps, I shall be glad if you can point out where the mistake, if any, was made, that I may steer clear of it for the future.—H. B., *Warrington.*

[Note.—Bees appear to be subject to many vagaries, which are often uncontrollable, but in cases similar to the present prevention is easy. Clipping the queen's wing will always prevent the absconding of the swarm over which she rules. Inability to find a queen is not contemplated. Even in cookery, which every one is supposed to understand in some degree, the advice is, 'First catch your hare.'—Ed.]

VICIOUS BEES.

I have just returned from my second unsuccessful and disheartening attempt to produce an artificial swarm from one of my bar-frame hives.

I followed the instructions contained in your leaflet on 'Artificial Swarming' as accurately as I could—viz., a puff of smoke into the entrance; removal to a shady place; taking off the quilt; a good sprinkle with syrup—and yet I was surrounded on both occasions with such a buzz of malcontents, driving their stings viciously into my thick gloves by the score, that it was impossible to proceed amongst such havoc.

At my first attempt yesterday I managed to remove all the combs to an empty hive, but without finding the queen. On most of the frames the bees were so thick that it appeared impossible to find her, so I put the combs back amidst great commotion. Each frame I moved seemed to raise a fresh swarm of combatants, although I moved them as gently as possible. This morning I found matters no better, and did not attempt to remove the frames again.

Can you tell me wherein I failed? I succeeded perfectly in driving last year without a sting, although I was courageous enough to attempt it without veil or gloves (my first attempt, too). That was, however, in autumn, when perhaps the bees are more greedy for the syrup than they are now that honey abounds. Tapping the sides of the hive to frighten them only appeared to make them more furious. An answer in your next *Bee Journal* will greatly oblige.—W. G. R., *Kent.*

[There is little doubt but that the thick gloves having been stung, and reeking with the odour of the sting poison, are the chief cause of offence to the bees, and provoke them in an increased degree at every succeeding attempt to manipulate them. The scent of the poison is as the sound of alarm to a garrison; and the bees, as would good soldiers, hasten to the point whence it emanates, and do battle with the cause of it. If gloves are used they should be of indiarubber, which the bees, apparently, do not care to sting.—Ed.]

EXPERIENCE. LOSS OF QUEENS. LIGURIAN DEPRECIATION.

My experience with my bees has been so strange I thought it might be interesting to give you a short account, and perhaps you can explain two or three things that appear inexplicable to me. I wintered thirteen hives: I lost one naturally, and three others were attacked and robbed, the bees all leaving them. No. 13 swarmed and cast in May—naturally. I made three artificial swarms, supplying

them each with two or three ripe queen-cells—two of them failed to raise queens, one did well. No. 12 swarmed, but their queen returned to the hive they cast, and I returned them again. They have a super about thirty pounds weight, another about six pounds, and have, I should say, thirty to forty pounds in hive, &c., besides. Nos. 1 and 2 swarmed together, but I fortunately separated the queens. No. 3 swarmed and cast, and had about fifteen queen-cells, yet failed in having a queen. I supplied ripe cells again, and again they failed. The cast from No. 3 I opened fourteen days after and found the hive nearly filled with honey, the centre cells all full, *no brood*, but a queen-cell starting; in ten days I opened it again: all honey gone, queen-cell ripe, and about thirteen drone grubs, no sign of a queen. Opened again six days after, bees all dying. Self and an experienced bee-master examined the hive, the queen-cell appeared perfect; it is possible it may have been only a drone after all, and a fertile worker in hive. She only laid about fourteen eggs in all. Queen hatched, and four drones hatched next day; what few bees were left had gone (if there was a queen I did not see her, the cell was perfect).

On June 6th I put a cast into one of the hives that had been left in April, the comb was clean and nice: ten days after they left, leaving pollen, &c., behind them. I put another cast in and they again left. Altogether I have lost sixteen or seventeen queens, and, super as I would, they swarmed and cast constantly, the last swarm coming off and leaving an unfilled super, July 26th. I have only about seventy pounds in supers, and notwithstanding swarming, &c., have only fifteen stocks, and three that I have parted with, having lost so many queens. Two of the queenless stocks, though full of bees and having about thirty pounds of honey in each, were attacked on Tuesday by my other stock, and all unsealed honey taken off. Notwithstanding my neighbours have got half-breds, nearly all my queens are breeding nearly black bees. Do you think they naturally get darker in this country? I entirely Ligurianized my apiary, and have now very few full-bred stocks, and there are very few neighbours who keep bees; those who did had half-breds last year and year before. I hope I am not troubling too much in sending this. Thanking you for your constant valuable information in the *Bee Journal*.—T. RADCLIFFE.

P.S.—I since have put these stocks together, after giving a little puff-ball, put in a fresh place given brood, and they are now raising a queen.

[NOTE.—The loss of queens on their marriage tour suggests an imperfection in the wondrous 'ordering' of bees that is somewhat puzzling to account for, when the general perfectness and fitness of their arrangements are taken into consideration. To insure the production of a queen, the bees often raise as many as twenty queen-cells, nineteen of which in the natural economy of the hive will be destroyed, and only one princess permitted to live, and she on whom the existence of the colony depends has to pass the dangerous ordeal of a flight where enemies abound, and the atmosphere so treacherous that even a huge ironclad man-of-war (the ill-fated *Eurydice*) could not for five minutes withstand its fitfulness. It would appear that with young queens the *ordeal* ought to be *passed* before the slaughter of the sister princesses is permitted. Doubtless, the arrangement, the outcome of Infinite Wisdom, is right, but like many other questions where faith is essential, it is not easy to recognise. Ligurian queens and bees do not become darker by living in England, but their descendants intermarry with the black bees of this country and lose the beauty of appearance which characterise the exported bees. What is thus lost in appearance is gained in power and energy, for it is admitted on all hands that half-bred Ligurians are much better workers than the pure bees of either race.—ED.]

BEES AND RED CLOVER.

It is generally stated that common bees do not gather honey from red clover. A few days ago (now August 23rd) I saw them working in hundreds on a very fine field of it. The blossoms were unusually fine, the land having been previously well manured for turnips, which failed. The bees were not gathering from the mouth of the flowers as they do on white clover, but at the very base, something like they do on beans, only I could not see that they pierced the flower. I only saw one gathering pollen, and it was gathering from the mouth of the flower.

I visited the field of red clover again to-day (August 25th), the bees were still working on it, but not so thickly as before. I find that a large proportion of the blossoms are pierced at the base in exactly the same manner as bean blossoms are, and the bees were gathering through the puncture; the common humble-bees, who were there in large numbers, did the same, but the large black humble-bees, and some other species of wild bees, were working at the mouth of the petal. I should think our bees are quite able to pierce the petal themselves as it is much thinner than the bean-blossom. It seems to me to be only a matter of education, and that the humble-bees are the teachers.—A. W., *Hereford*.

QUEEN PIPING.

Thinking it may be of use to your readers I send you the following facts:—On May 31st I had a swarm from a straw skep; the same evening I heard the piping going on; next day it threw another, but still the piping could be heard, and for several days after. I have spoken to several bee-keepers respecting the piping, but can gain no news as to the cause.—T. COOMBER, *Mayhew's Terrace, near Rochester*.

[*Our* opinion on queen piping will be found on pp. 20 and 21 of *Journal* for June last. We probably stand alone in that respect.—ED.]

EXTRACTING FROM NEW COMBS.

To-day I opened one of your bar-hives inhabited by a swarm put into it on June 21st last. It was quite full of straight comb and sealed to the bottom. I took out three bars, unsealed them, and one by one put them into the extractor. They were hung as you direct, and just rested against the wire grating. They were very heavy, one mass of honey with apparently the thinnest of wax-cells. The result was a double failure. First, in each

case the comb broke off from the bar hopelessly, about an inch below, and next I could not succeed in getting the honey to run out. I got twenty lbs. of honey from the three bars, but the extracting was an utter failure, and I had to return the bars to the hive empty. Can you explain this, as I have other hives which I intended to operate upon, and now, after to-day's experience, I am rather afraid to try? I cannot see any reason why the honey would not leave the cells, as we have no heather within nearly two miles, and the honey in the upper and first-filled part of the bars was as immoveable as that in the lower. With respect to the breaking of the combs, was I wrong altogether in attempting to extract the honey of a this year's swarm? Will you tell me also whether the knife ought to be sharpened, or used just as you sent it out after being plunged in hot water? I intended to have extracted all the ten bars, but I did not touch the others after my experience of the first three, and they are choked with honey.—J. H. W., *Dorset, Aug.* 5, 1878.

[Extracting from new combs requires very great care, as the slightest inequality of pressure will be sufficient to cause the breakage of the fragile cells, and rapid revolution of the machine will often reduce the whole to a mass of 'pudding.' In such cases the combs should be gradually relieved of their honey, *if it will flow*, by extracting from either side alternately, for it will be manifest that the full weight of the honey on one side when pressing against the empty cell-walls of the other will be sufficient to crush them, and when a high rate of speed is attained would probably force the comb itself through the wirework. When honey is thick and tenacious it is useless to try to extract it, but with flower honey, as a rule, only a slight momentum is necessary to cause it to leave the cells, more particularly when they are placed in a facilitating position.—Ed.]

THE EDITOR'S REMARKS ON THE PARIS EXHIBITION REVIEWED.

By an English Bar-framist resident in France.

As a bee-keeper on French territory, and one who has studied French methods, permit me to pass a few remarks on your very interesting article, detailing your visit to Paris in the July number of *Bee Journal*. You have met M. Hamet, so have I; for I interviewed him July, 1877, and he said to me just what he said to you, and rather more! Your remarks lead me to conclude you have formed the opinion that he is a 'man of progress.' If so, then I am at variance with you; that is, assuming you take the bar-frame system of working and the extractor as our common basis. 'The man of hindrance' I term him, to modern apiculture, such as taught by you in England, and taught in America, Germany, and Italy. During our interview M. Hamet pish-pished everything that referred to bar-frame working, made remarks anything but complimentary to a French bar-framist of note and scientific attainments. The opinion I then formed of him I find amply endorsed by the contents of his own Journal, which I read monthly by the side of the *British Bee Journal* and the *American Bee Journal*. M. Hamet receives the same, but cannot read English, consequently does not profit except in his waste-paper department. He laughingly asked me if I kept my bees (I was then living in London) near sugar refineries, and he then showed me a beautifully finished-off straw super, which was for the *present* Exhibition, and which had been made by his Paris bees, which he kept close to some large sugar refineries. He told me he made his money by selling stocks, and as he could get most swarms out of straw hives, it would not suit him to advocate wooden bar-framers.

I bought his book, *Cours d'Apiculture*, subscribed for his Journal; he was very polite, but I had not met an advanced bee-master. I study his book, I study his Journal; and now let me show why I form such an opposite opinion to yours; why I consider M. Hamet is not the enthusiast who would, or could soar above the realms of bee lore as at present known and lead France to a higher state of knowledge; for, while granting that Frenchmen as a rule are wedded to the usages of their ancestors, and that M. Hamet openly cries for apicultural teaching in the normal schools of France, he has not the power to read, to his own conviction, and so turn from his ways, *à la* Pettigrew, and teach the rising generation of Frenchmen that mode of working which gives quality and quantity far ahead of what any French bee-keeper believes possible. I have conversed with certain advanced bee-keepers in France, and they condemn him for his tyrannical manner of writing, and the sharp, biting sarcasms flung mercilessly at them by means of his Journal. Let us judge the man by his own writings. Take his *Cours d'Apiculture*, he there devotes two pages, out of three hundred and seventy, to the 'extractor'—simply description—no advocacy of its use. In his Journal for 1877 and '78, I can remember no teaching of its use whatever. So much for his appreciation of the machine you devote an entire page of July number of *Bee Journal* to teaching how to use with profit. Again, same book, page 169, speaking of Dzierzon's hive, he says:—

'This hive enabled Dzierzon to make those studies which had not yet been made in natural history, amongst others, Parthenogenesis. It has also permitted him to break up into fractions those Italian colonies which he spread throughout Germany, with enormous profits to himself.'

Note the sneer at the profits of a poor parish priest, admitted to be the benefactor of all German bee-keepers, and the greatest discoverer of the day in apicultural science. Again, same book, p. 170:—

'It is by lifting up at will of full frames to empty them that the "Framists" establish the pretended superiority of their system over "Fixism."'

Turn to his own Journal *L'Apiculture*, page 131, describing the meeting of a Bee Association at Amiens, one gentleman had brought a Langstroth hive, a bar-framist ventures to extol the same. Mr. Hamet dubs him 'this luminary,' and again, 'this epileptic.' After making an offer of a contest *à la* Pettigrew, he ends up with 'This proposal made him hold his tongue.'

Again, page 228:—

'Whilst we are speaking of Italian bees we will mention the results obtained by a bar-framist of the North, who says he has obtained hives this year whose interior

weight is 75 kilos. As we must see to believe such things, we will make an incessant pilgrimage, and we will not fail to divulge the miracle if it be at the door of all.'

Again, page 229 :—

'We must all profit by the honey crop of August, 1877, to obtain the supers that we mean to exhibit at the exhibition; and if there is no honey in the flowers, there is always sugar at the grocer's. One should know how to spend 20 to 30 francs to have only a something worth 5 to 6 francs; yet at the same time an eye deceiver (*trompe l'œil*) of the first water.'

In the same journal read his reports of the meetings of the French Central Society of Apiculture, the whole tenor of the remarks he reports as having himself made is to run down bar-framists.

An independent journal was started at Bordeaux to advance bar-frame ideas, as far as I could learn; M. Hamet wrote it down whenever he could.

Now it appears to me that the man who sneers at Dizerzon, openly calls his antagonists sarcastic names, openly doubts and holds up to ridicule his correspondents' statements, unblushingly advocates shoddy supers for the Paris Exhibition, and runs down bar-framers whenever he can, *is not* the man fitted to lead France to a higher state of apicultural practice.

What value do you set on that straw super (such nice white combs) exposed by M. Hamet? Is it not likely other exhibitors took the unprincipled advice? I am done, and am only sorry I did not know in time, to give you an introduction to the man more to our taste,—the man of progress you ought to have met in Paris, and who deserves of his countrymen to be so called, viz. Monsieur George de Layens.

BIRDS—BEE ENEMIES.

We have this season had a stock of bees destroyed by small birds—sparrows, tomtits, greenfinches, &c. They fly across before the hive as the bees are going in and out.

I should be glad to know whether any of your correspondents have suffered in like manner, and whether you can suggest any means of preventing the annoyance for the future, except the destruction of our little songsters.—A SUBSCRIBER, *August 14th*, 1878.

[NOTE.—This is a new phase in the charges brought against these birds. We have looked upon the sparrow as a live drone-trap, and have watched with interest the cunning-looking rogues as they pounced upon the fat lazy drones as they alighted. We have often suspected them of a liking for worker-bees; but on comparing notes with other observers, acquit them of the charge. Tom-tits we know are ruthless bee-destroyers, and we know of no better method of prevention than a gun now and then; or, if more humane efforts are desired, a piece of wire netting over the entrance will prevent the pounce with which they seize the bees. We never saw either of the birds mentioned attempt to catch a bee on the wing. Gibbeting two or three of the rascals has a salutary effect.—ED.]

APPOINTMENT.

We have been informed that at a recent meeting held at their head office in Milan, the directors of the Central Bee Association of Italy have appointed Mr. John Camaschella, of Forest Hill, to be their hon. representative in London.

BEES IN THE CITY.

There is an open space in Fetter Lane, Fleet Street end, on which there happens to be a patch of about two square yards of ground, covered with white clover, now beautifully in bloom. On it, strange to say, about half-a-dozen bees are always to be seen hard at work on any fine day. Where do they come from?—JOHN CAMASCHELLA, *Forest Hill, August*, 1878.

DUALITY OF QUEENS.

I have at the present time two fertile queens in my observatory hive. The fact of their being two queens was first observed by my brother on the 4th of August last, but the young queen did not commence laying till Monday the 19th. Both are on the same comb, and I have seen them so close together as to touch one another in passing. Since the young queen began laying she has been treated with the same attention by the workers as the old one.—E. H. OLDHAM, *East Barnet, Herts, August 26th*, 1878.

CLOVER FOR BEES.

SCENE.—*South Kensington.*

Interested Swell. Yas! Bees are wonderful creachaws, and I am told they are very fond of clovah?

Bee-keeper. Yes! very.

I. S. Haw! indeed! and pray how do you give it to them?

B. K. Oh, we just cut it into chaff and they take it like lambs.

I. S. Dear me! How very singulah! Good-bye.

NOTES AT THE BEE SHOW.

[BY OUR REGULAR STINGER.]

The fourth annual exhibition, under the auspices of the British Bee-keepers' Association, was the other week held in the Horticultural Gardens; and, according to their wont, the B. B. (or Bee Bee) Association 'went in a buzz-ter.'

Baroness Burdett-Contts was the president, but it was not she who said she hoped all the lively little exhibits would be on their best bee-hive-iour.

A straw hive is, it seems, called a 'skep;' but the insects which inhabit it are not necessarily skep-tics.

Bees give wax. The bigger the bee the harder the wax—or whacks, if you choose to spell it so. Bees are also said to produce Honey, but as I did not observe the popular comedian at the show, I conclude that this latter assertion is without proper foundation, or that he was otherwise 'Engaged.'

I inquired of an old bee-keeper what the Queen Bee wanted with so many combs, and he told me in strict confidence that they were for her 'heirs.'

Some honey was exhibited which had been 'taken from a hive in a room 60 feet from the ground in the Strand.' Who, after this testimony, can assert that the well-known thoroughfare is not a 'sweet locality?'

I must chronicle, in conclusion, that neither Lord Beaconsfield, nor the eminent barrister Bees-ley, nor Cuthbert Bee-de, were present at the exhibition. Such absences were not bee-coming!—*Funny Folks.*

[One other name was included in the list paragraph. If the 'regular' *dunce* who contributed the article (?) wanted words to tickle human bee-ings withal, we could have suggested bee-attitude and such like; and rather

than that his poverty of language should have induced him to *bee* un-*bee*-coming in the presence of our lady president we would infinitely prefer that he should *bee* hanged.—Ed. *B. B. J.*]

Echoes from the Hives.

Insch, August 17th.—Highly Suggestive—Old v. New System.—'Would you kindly send to Insch Station, Great North of Scotland Railway, your Eccentric Extractor, &c., with invoice as soon as you can, as my hives are full of honey, there is scarcely an empty cell. I am a convert from the Pettigrew system to the new, and have every reason to rejoice at the change.'—G. R.

South Ockendon.—Crooked Combs.—'In your *Journal* for the present month, "A. G., Sheffield," asks your advice as to what he shall do with his bar-frame hive that contains comb of all shapes. The plan I have found to act best under similar circumstances is to gently press a sheet of stout tin or zinc down between the combs to be separated. It should be large enough to cut through the entire length and depth of the combs, and if two pieces of board are placed upon the top of the hive, and their edges made to meet over the comb to be cut through, they will act as a guide, and at the same time effectually prevent his being interrupted by the bees during the operation. A little smoke blown in occasionally will drive the bees down, and with care not a bee will be injured. I need scarcely say that the operation should be put off until the brood are hatched out of the comb to be separated.'

Birmingham.—'I have eleven hives full of bees, and am therefore interested in them, but have been induced to write to you and enclose stamps for a copy of the *Bee Journal*, and should like to have it monthly. I write, however, particularly to say that though I am an old man (seventy-six) I have only till this year hived the bees myself. I adopted Mr. Pettigrew's plan of large hives, those I use are 16 in. by 12 in. outside measure, flat at top with a 4-in. aperture covered with a straw flap. I have glass supers on most of them, but have not had them filled with honey yet. I will not kill the bees, and I want to know the best way to extract some of the honey from the hives without hurting them. Mr. Pettigrew talks of the easy mode of doing so, but I cannot see it! I fumigate with tobacco, but I want something better than a common pipe.'

Cork.—'I took 54 lbs. super honey in combs from a Standard hive of common black bees last week, and though I had no adapting-board or zinc, there was not more than a square inch or two of brood or uneatable comb in the lot. That was not very bad for the natives, and they are now filling another super which I put on when I took the others off. With me they have beaten the Ligurians this year, but the latter have given more swarms. I must have a further trial with them before I fall out with the blacks.'

Pulborough.—'The hive I have is a large round straw, with flat top and slide to it, so I was in hopes of setting a good example to the cottagers about here, who always smother in the autumn; but now should like to try the bar-frame, as I find they are more manageable.'

Wirksworth, Derby.—Ligurians: Small Swarm System.—'The honey harvest has exceeded my utmost expectations this year, and the Ligurian small swarm has done splendidly. It is now a strong stock, and has given about twenty lbs. of honey, and I have two swarms that promise to winter well, with two queens, daughters of the one that heads that small swarm. If a small swarm does so well, a large swarm must be quite a fortune. This is my first experience with Ligurians, and I am quite in love with them.'—H. M. S.

Gourock, N.B.—'For the last month the bees have been doing very little here, the first half of the month the flowers were completely dried up, and since then broken weather has kept the honey boxes empty; the heather is in full bloom and with a fortnight's good weather they would make up their loss.'—J. W.

Queries and Replies.

Query No. 272.—Observatory Hives in Winter. Is there any chance of the bees in the Observatory Hive I obtained from Abbott Bros. this spring surviving the winter if I cut away some of the comb and thus give them room to cluster? The stock is pretty strong and is in a sitting-room, in which there is a fire throughout the day.—T. B. G.

Reply to Query No. 272.—We think it scarcely possible that bees in a one-comb observatory hive can survive the winter and continue in existence next season. It is not improbable that some might live through the worst of the time, but spring activity would almost certainly reduce their numbers by death in undue proportion to their rate of increase, and ere sufficient young bees could be hatched the aged would die, and the brood comb would be deserted. It is on record that Mr. J. G. Desborough of Stamford wintered a stock (?) in an observatory hive, and that they 'pulled through,' but, as a rule, such hives are summer receptacles, and from the time of 'stocking' begin to decline.—Ed.

Query No. 273.—*Transferring.*—In transferring combs to bar-frames, if any portion of brood be covered with tape half inch wide, or thin lathe same width, what injury will be done to either sealed or unsealed brood when left for forty-eight hours or more?

Extractor.—In using the honey extractor is there any danger of chilling the brood in the comb, seeing they are subject to a considerable current of air? Should feel much obliged if you could answer the above in September *Journal*.—Jubal Barrett, *Ryecroft*.

Reply to Query No. 273.—1. The brood covered by tapes will (as a rule) be destroyed by the bees, for they will be almost sure to cut a way behind the tapes, thereby unsealing the cells; if, however, the brood be in a hatching condition, the developed bees may escape. It is seldom necessary to tie the tape over the brood, and always unadvisable. 2. We have many times explained that combs revolving within a stationary case are subject to the lowest temperature for the time being, in consequence of the disturbance of the air caused by their revolution. This may be felt by holding the hand *above* the revolving cage. The only extractor which obviates this danger is 'Abbott's Little Wonder' in which the case, air, and comb revolve together as a whole, and in them alone can the circulation of air be totally prevented. —Ed.

Query No. 274.—I have three late swarms hived—two in straw butts, as they are called here, and one in a box with bars on top (Taylor's Hive), but no frames; but the bees have not worked straight on the bars, having no guide-comb, as I find I ought to have had? None of the three will have sufficient store to stand through the winter. I should like to join them. How must I proceed, and when will be about the best time to do it? I have also a strong stock in a straw hive which has not swarmed for the season. I put on a bell glass, but the bees never worked in it. Now, I should like to get them into a frame-hive. Would they do simply shaken or driven according to directions which will be

given in answer to above, and then fed? or should some of the combs be placed in a frame-hive with them? I want the honey if feeding will do—that is, if it will pay. I have also a straw hive which has got more honey than will be required for the winter consumption of the bees. How can I take away some of it? Being a beginner in bee culture, should be glad of answers to above questions in September No. I see one of your correspondents in August No. says something about your six Leaflets; what is the price of them, as I shall be glad to have anything?—TOBIAS MICHELL, *Cornwall.*

REPLY TO QUERY No. 274.—We do not think you can do better than obtain the leaflet on 'Transferring,' as it will give all the information you require.

QUERY No. 275.—*Experience. Driving.*—Wanting a good smoker for use in driving bees, and in opening frame-hives, I should be glad to have prices of different ones. I should like to know particularly which kind will keep itself alight longest. I use brown paper dipped in a solution of nitre; never anything else. Is the Quinby smoker to be had in England, and at what price? Please send price list of extractors, or any other bee apparatus at same time. Would you kindly answer a question or two when replying, as I cannot afford the *Journal* regularly till my bees enable me to do? I shall be driving some skeps for cottagers in a week or two, and adding the bees to my own hives. I have done this before, and chosen between five and nine o'clock p.m., because of finding more bees at home than in the middle of the day. I find, however, that they take an hour to go up, and do not all quit even then.

1. Why are they so long?

2. Would they drive quicker at noon? But then I should get so few bees.

3. Would bees have a fair chance to stand the winter if made up into a hive so late as August 6th, viz., driven bees (plenty of them) in a Langstroth hive, with one or two combs given, and fed up well and gradually, on your system?

REPLY TO QUERY No. 275.—The foregoing is a fairly correct specimen of the questions put to us by those who want the result of our experience, yet who do not care to take the *B. B. Journal* that would 'make them wise in time,' *at a cost of less than three half-pence per week.* It is really unkind to expect us to give the result of our experience for naught, the labour being so great.

The 'smoker' that will keep alight has not yet been invented unless some chemical be used. The nitre used with the paper will sufficiently account for the long time the bees take to go up when driven (?) The fact is, the fumes of the nitre prevent their exodus, by half suffocating them.

The middle of the day is a *good* time for driving, ordinarily: and if the driven swarms be left on their own stands until evening, all the flying bees would be captured, and they could be united afterwards.

The methods we advocate are in consonance with many years' experience, and are the best we can offer: why try experiments which lead over the old ground, and court disappointment?

Our leaflet on 'Transferring' offered free for a penny postage-stamp will give the information asked in Query No. 3. Can information be offered at a cheaper rate?—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

*** We have given four extra pages this month; but in consequence of the extended reports of the various Bee Shows with the adjudication of prizes, we have been reluctantly obliged to postpone some descriptions of Hives and other interesting papers to another month.

LISTER'S NORTHERN STANDARD HIVE.

ABBOTT'S PATTERN.

THIS hive is produced for the convenience of 'the brotherhood' resident in the North, and contains *all the principles and advantages of 'Abbott's Standard Hive.'* It is guaranteed similar and equal in construction and workmanship, having a double-walled stock-box, neatly dovetailed at angles; contains 10 'Standard' shouldered taper-frames and 2 moveable dummies. The roof is hinged and locked, with hinged support under eaves to sustain roof when open; a Rack is fixed inside, on which to suspend frames when manipulating; a frame is screwed to bottom of stock-box, easily removeable when the hive is used on the 'doubling system (see May No. 49), the best and most profitable for Northern districts;' 3 moulded plinths are planted on the base of hive sides, a fourth being sent to screw on front when the hive is 'doubled.' The hive rests on a separate stop chamfered framed stand, for greater convenience where stocks are sent to the Moors. The whole is executed in best yellow pine, neatly planed outside and in. Price, with quilt, 32*s.* 6*d.*

Amateurs' Standards, containing 10 shouldered taper frames, and adapted to the doubling system, as above, of 1-inch best yellow pine, dovetailed at angles, neatly planed, *specially recommended.* Price, with quilt, 22*s.* 6*d.*: legs, 2*s.* per set extra.

THIRD PRIZE AT STAMFORD, 1878.

Cottagers' Standard, 1-inch deal planed, containing 8 shouldered taper frames, with an ample roof for supers	9*s.* 0*d.*
Extra stock boxes, with a set of frames each, for No. 1, 15*s.*, No. 2, 12*s.*, No. 3	7*s.* 0*d.*
Abbott's Prize Hive, with quilt	30*s.* 0*d.*
,, Extractor, large size	17*s.* 0*d.*
,, Original Sectional Supers	2*s.* 0*d.* per set.
,, Nucleus Hives	4*s.* 0*d.* ,,

All frames have wax guides. Hives well painted, 2*s.* 6*d.* each extra.

Early orders are solicited, to ensure prompt delivery.

APPLY TO E. W. LISTER, THE ELMS, KIRKBURTON, YORKSHIRE.

LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION.

THE SECOND ANNUAL **HONEY FAIR**, in connection with the LINCOLNSHIRE BEE-KEEPERS' ASSOCIATION, will be held at GRANTHAM, on TUESDAY, the 24th of SEPTEMBER, 1878.

All Honey sent must be Carriage-paid, and consigned to the HON. SECRETARY, and may be sent any day from the 17th to the 23rd September. *None* will be received after 7 p.m. on the 23rd.

No commission, or charges whatever to Members. Non-Members will be charged the usual commission—One Penny in the Shilling on all sales. No charge for counter space.

Early application is requested. Further particulars of the Hon. Sec.,

R. R. GODFREY.

We have already inquiries for over a TON of HONEY.

Fair open to Producers in the United Kingdom only.

East of Scotland Bee-Keepers' Society.

UNDER the auspices of the above Society, it has been arranged to hold a

GRAND HONEY & FLOWER SHOW

For the DEESIDE DISTRICT, in the TOWN HALL, BANCHORY, on SATURDAY, 14th SEPTEMBER, 1878.

PATRICK DAVIDSON, Esq., of Inchmarlo, Local Patron.

Parties wishing to be enrolled Members of the Society are requested to apply to Mr. J. D. KER, Douglasfield, Dundee, or to Mr. RICHARD M'GREGOR, Inchmarlo, Banchory, Vice-President, who will act as Secretary for the Show, and of whom full particulars may be had by enclosing a stamped directed envelope.

Member's Ticket, Two Shillings and Sixpence.

THE GREAT HAMPSHIRE BEE-FARM, near Stockbridge: Its Principles and Method of Working. Also,

THE BEE-KEEPER ALMANAC, which contains Prognostications of Weather expected, and What to Do in Bee Management. By P. E. MARTIN, Master Mariner, Bee Master, Proprietor and Manager of the Bee Farm, inventor of the 'Sailors' Bee-Hive,' now the 'Standard' Bar-Frame Hive, for the United Kingdom. Price 6*d.* each, per post 7*d.*

Choice Honey, in 5lb. Tins, sent, Railway carriage paid, as far as S. W. R. Co. have through rates, on receipt of P.O.O. for 6*s.* 6*d.* payable at Stockbridge.

Illustrated Price List post free.

ABBOTT BROTHERS offer pure imported LIGURIAN QUEENS at 8*s.* each, during September, subject of course to the Alpine climatic disturbances. Purity, Fertilization, and safe arrival guaranteed.

GEO. NEIGHBOUR & SONS' BEE-HIVES & APPARATUS with Living Bees & Honey.

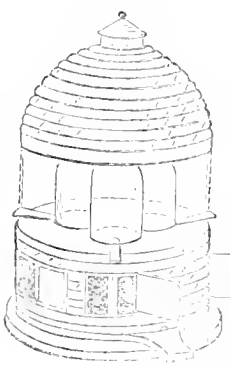
Awarded a Prize Medal and Diploma at the Philadelphia Exhibition of 1876.
Silver Cup at Edinburgh Show, 1877.
and, Two Silver Medals at Paris Exhibition, 1867.

NEIGHBOURS'
IMPROVED
COTTAGE HIVES,

as originally introduced, working three Bell-glasses; is neatly and strongly made of Straw, with three windows in lower Hive.

Price £1 15*s.*

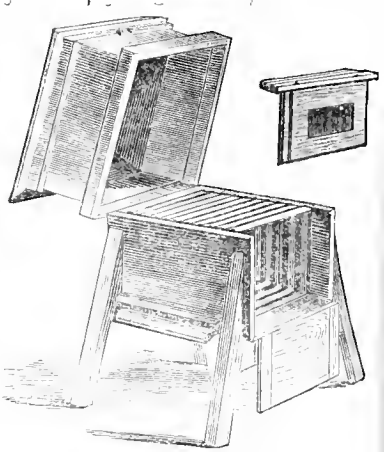
Stand for ditto, 10*s.* 6*d.*



Agents for Hives made by JAMES LEE.

Neighbours' Philadelphia Frame-Hive.

Combs removable at each end whilst Supers are on. It has three windows in Stock Hive, and works Divisional or Sectional Supers on Zinc Adapter; the perforations of which admit Working Bees, but exclude Queen and Drones. Italian and English Bees, Stocks and Swarms supplied as usual. Prices on application.



Just Published. 3rd Ed.

THE APIARY. By ALFRED NEIGHBOUR. Price 5*s.* Postage 5*d.*

*** A newly-arranged Catalogue of other Improved Hives, with Drawings and Prices, sent on receipt of two Stamps.

Address—GEO. NEIGHBOUR & SONS, 127 High Holborn; or 149 Regent Street, London. fo. 31

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 66. Vol. VI.] OCTOBER, 1878. [Published Monthly.]

Editorial, Notices, &c.

OCTOBER.

The last month of honey-gathering has passed, and the Bee and Honey Exhibitions of the season are over, and bee-keepers may now look back on the experiences of the year, count their gains or losses, balance accounts, and prepare their bees for the coming winter. The shows have, with scarcely an exception, passed off well, and in every instance with marked success, those in which there were manipulations with live bees having been best appreciated; in fact, wherever practical demonstrations of the operations useful in an apiary have been exhibited, the interest of the public has always been most deeply enlisted, and the public press set ringing with the story of the wonders displayed. So long, loud, and oft-repeated for many years has been the applause, that it has at last affected our 'American cousins,' who have begun to feel that something may, after all, be learned from the old country, and they are proposing to follow in our wake, both in respect of bee and honey shows, and exhibitions of manipulation with live bees.

We are glad to be able to state that the interest created by the exhibitions is gaining strength, and fresh ground has been broken both in England and Scotland, while in no case has there been a relapse. The Glasgow 'Honey Fair' appears to have been an immense success, not a pound of honey of any kind remaining unsold; and we hope to hear a similar report from Grantham, whose fair took place on the 24th ult. In the August number of our *Journal* we alluded to the now past season as one worthy of remembrance for its honey yield, an opinion which has not been generally shared, though, strange to say, in many places the harvest has been greater than heretofore, and, taking all things into consideration, it is fairly open to question whether the ill-success is the fault of the season, or whether the complainers may not have been, in a sense, defaulting in having stocks unprepared for the ingathering when the harvest was ready. It is the height of wisdom, in respect of bee-culture, 'to keep only strong stocks,' but, as with many another dogma, it is more easily written than acted upon. The honey season, however, is now of the past, and anything that might be said cannot now influence it; but, having in view the coming season, when in this fitful climate the endurance of bees will probably be taxed to the uttermost, we cannot forbear reference to the above maxim, and urge our friends not to allow themselves to be 'caught napping' with winter upon them and weak stocks ununited. It is always disagreeable in autumn to feel it necessary to sacrifice nice queens because the bees about them are not sufficiently numerous to take care of them through the winter, but it is better far to lose the queens than to lose all, and therefore, in their own interest, and to save vexation at a later period, we trust our readers will make short work of it, and unite weak lots, so that they may go into winter quarters with a hope of life. It is possible as regards queens, that many would be glad to know where spare ones could be obtained, and having no black or hybrid mothers of our own, we shall only be too pleased if we can be the means of communication respecting them. If those who have queens to spare will write stating terms, and those who wish for such will write to that effect, enclosing stamped envelope, we will do our best to favour the object in view. This will save the delay consequent on advertising, and may help to prevent loss in sundry apiaries.

WORK FOR THE MONTH.

The chief labour of the time is that involved in preparation for the winter, now so close upon us, and where it has not been done no time should be lost in securing the necessary conditions. Floor-boards should be cleansed, or, better, renewed; the lower rims of hives should be also cleared of wax-worms, and the *débris* caused by them; old propolis should be scraped away, entrances narrowed, and roofs

thoroughly examined and repaired, to prevent weather moisture getting to the hive. Outer cases in general should be looked over, and all traces of insect pests destroyed; the inside of such cases forms snug harbour for the eggs, &c., of spiders, and timely attention in the foregoing respect will enable one to prevent the appearance of myriads of the vermin. Ants are fond of making their abode in a warm place, and only a few days since we found in a neglected hive that they had carried nearly a peck of earth to the top of a flat-topped skep, and had formed their nest there, snugly covered by the roof, which was quite sound but highly ventilating. Queen-wasps may presently be found ensconced between the covers or wrappings of hives. To the uninitiated they appear dead; but every one should be crushed, or in the spring it will form for itself a nest. The scarcity of wasps in this (our) neighbourhood is very remarkable, but due, probably, to the careful destruction last autumn of every nest we could hear of. Winter passages should be cut through combs, particularly in hives that have many side by side, or in stress of weather the bees may consume all the provision at one end of the hive, and having no means of getting back through the combs to the other end might perish. This eventuality could possibly be prevented by placing all the store combs on *one* side of the hive, so that the bees need advance upon them in one direction only (*à la* combination principle).

Weak and queenless stocks should be united, not necessarily together, unless now in close proximity to each other, but may be absorbed, as it were, into neighbouring stocks. Strong but light stocks should be fed at once, or they will be a source of much trouble during winter. Winter feeding ought to be totally unnecessary. The food should be within the hive, stored, properly evaporated, and sealed before winter sets in. Barley sugar is the best late food, as the bees store it in a condition almost fit for sealing forthwith. Artificial pollen is useful in spring; but must not be forced into the cells in autumn, or it may set up fermentation in the hive, and dysentery will claim it for its own. Dysentery may be easily prevented, but is most difficult to cure, and once set up may, through its source being robbed, cause the disease in other hives. 'A little leaven leavens the whole lump,' and the leaven of dysentery (fermentation of the honey, &c., in winter) is highly insidious, and in our humble opinion is the cause of foul brood.

The means of prevention are such as we have indicated. Keep the stock strong, well supplied with sealed stores, its domicile quite clean, perfectly dry, and insensibly ventilated above. Keep out driving rains and snow, also bright sunlight, but let the front, at least, have the benefit of the sun's winter rays to ensure dryness and occasionally help to raise the temperature within. Let the porch of the hive be a good shelter to the entrance; keep the latter free from obstruction, and do not meddle with the bees without good cause; for every unnecessary buzz which they give forth is hurtful to them, and reduces their vitality. In snowy weather remember it is not the sun's heat that tempts bees to their destruction, but its glaring reflected light; therefore, carefully *shade* the entrances, but do not close them.

ABBOTT'S COMBINATION HIVE.

If some of our critics were to be believed, we should be subject to severe condemnation for having been guilty of flagrant error in adopting, and thereby sanctioning, the principle which permits and encourages the building or placing of the combs in a bee-hive crosswise, *i.e.*, parallel to the entrance front, instead of their being at right angles therewith. The old arguments are used—their natural condition, their convenience for the bees, their suitability for ventilation, the ease with which the bees can defend, all being able to rush to the entrance front, and a host of other reasons why; and as for our proposal to prevent swarming by the introduction of a diaphragm of excluder zinc which will encage the queen (and therefore the drones?) why we must be positively insane, if the opinion of the gentleman hailing from Corsham, whose letter will be found elsewhere, is of any value. With regard to the first count in the indictment preferred, we would plead that transverse frames are almost wholly used in many countries, Italy and Denmark for instance; while the principle of causing bees to build transversely where frames are not used, is 'as old as the hills,' and prevails throughout Egypt and Japan to the present day, and is, as a rule, a highly successful aid to the method of obtaining large quantities of honey with the minimum of cost and labour, and, hear it ye of the brimstone school! without wilfully killing a single bee. The Egyptian and Japanese plan consists in causing the bees to take possession of earthen tubes, similar to drain-pipes, of about four feet in length, one piece of comb having been fixed transversely as a guide a few inches from the entrance, and parallel to this the bees build all their other combs; those for brood being at the front, and those for honey towards the rear end of the tube, and when harvest-time comes or the bees show signs of overcrowding, that end is opened by the removal of its plug, smoke is blown into it, and the bees thus driven towards the front, while the operator removes such

combs as contain virgin honey, leaving the bees alive to work again as opportunity offers. It is a well-known fact that bees prefer to store their honey at the farthest point from the hive entrance, or, if we may put the case in another form, at the point least accessible to their enemies; and having observed that those in possession of the spaces between the joists in bedroom floors, when they build comb after comb far towards the centre of the room and almost all crosswise of the entrance front, accumulating immense quantities of honey without any attempt at storifying; it occurred to us that, for summer wear at least, a bar-frame hive on that principle would give good results. The first experiment was tried with a set of frames on the 'Giotto' principle, placed one behind the other, as many visitors to our apiary may remember,—for it was not kept secret,—and it succeeded admirably, with this advantage, that we could feed the bees at the back part as long as it was not required for comb-building, and then, by giving more frames, room was still made for feeding at back in the best of all positions, for, being actually enclosed within the frames, even the suspicion of robbing was not created, and by simply removing the back board the feeding apparatus was comeatable in an instant. Seeing, then, that one advantage had resulted, it occurred to us that by slipping a diaphragm of excluder zinc behind the brood-nest, the queen would be prevented access to the rear, being thus restrainable at any point; and then it occurred that a similar diaphragm near the front would prevent her exit by the entrance-way, and, 'Eureka!' by such method swarming could be prevented. 'But surely,' whispered our good genius, 'you do not intend to revolutionise bee-keeping, and render useless all the hives that have hitherto so well fulfilled their purpose?' 'Certainly not! The object most desirable is to combine in the construction of future hives facilities which will enable those willing to entertain the new idea, to go a step farther than they have ever been able to go before; there need be no radical alteration of hives: or, if the verdict of the public is greatly in favour of the principle, the alteration may be gently made with the least possible inconvenience and expense.'

With regard to bees building their combs from back to front of the hive, it does not appear to be recognised that from time immemorial *they have been taught to do so.* Columella, nearly two thousand years ago, wrote, 'Let the mouths of the hives which afford entries to the bees lean more downward, and be more sloping than their backs, that the rain may not flow into them,' &c. And this has ever been the teaching in England, and will sufficiently account for the position of the combs in hives generally, for bees, as a rule, build in confined spaces parallel to the perpendicular walls, if any exist, by which such spaces are bounded, and if not, they commence at the highest point of the hive,* and build from it the largest comb possible.

Now that the 'lines' laid down by the early English bar-framists have been abruptly departed from, and the departure recognised and approved by the best judges in the land, the subject, as may be supposed, has been freely discussed at the various shows where the Combination hive has been exhibited; and though there be many who doubt the correctness of its principles, there are also many who believe that it is an innovation in the right direction; not a few expressing their belief that the transverse system of comb arrangement is the correct one, and that the principle should be universally adopted. Of that more anon. We cannot, however, refrain from quoting a few lines from the second volume of the *B. B. J.*, p. 110, in reference to a bar-frame, which had a tunnelled floor-board, and upon which the owner had accidentally placed the hive, with the frames running crosswise, when putting it in its place with its newly hived swarm.

The experience recorded was our own, we having volunteered to overhaul an amateur's apiary, extract the honey, and prepare the bees for wintering. We found the frames, as aforesaid, running crosswise, and we quote, 'The bar-frames were, however, removed, and eight of them were found to be filled with sealed honey (and pollen), the other two [the front ones we well remember] containing large patches of brood in all stages. Between the comb at the back of the hive masses of dead drones were found which, from the frames running across the hive, and being so close to the floor-board the bees had been unable to remove, and, as is customary with them, not liking loose lumber in the hive, they had propolised them together in rolls of the size of one's finger, as they lay upon the floor-board between the bottom rails of the frames, where they had become quite dry and brittle.'

These lines were penned nearly four years ago. The hive was an original 'Sherrington,' ill-made, and the frames too large and deep, hence they formed an obstacle to the removal of drones that the bees could not overcome. There is, however, *the fact*—and a striking one it is—that of ten frames running across the hive, eight were filled and sealed, and the two nearest the front were well charged with brood in all stages—*in the month of October.*

As regards the prevention of swarming by

* After-swarms are often exceptional, and for warmth hug the side or corner of a hive and build anyhow.—Ed.

confining the queen of a hive, as explained in the description of the hive in last month's issue of the *Journal*, our objecting correspondents conclude beforehand that the drones also must necessarily be imprisoned; but we fail to see the reason why. It is remarkable that as a rule bee-keepers ignore the value of drones, except for a special purpose, which does not require their confinement with their queen-mother; yet our correspondents argue that they will be confined with her, 'which will not do.'

At the late South Kensington Show, Mr. Carr, of Newton Heath, Manchester, in reply to an amateur's question as to the best means of ridding his hive of its numberless drones, said tersely, 'Rid your hive of superfluous drone-comb and you will not be troubled with them;' and that has been our doctrine for years past. A hand's-breadth of drone-comb is sufficient for any hive, which, being about five inches square, would produce over four hundred drones at every hatching, or perhaps two thousand in the season. 'Tis true that 'Oft the sight of means to do ill deeds makes ill deeds done;' and in bee-keeping the principle is far too often exemplified, and, perhaps, it is on such grounds that the objections are raised as to the method suggested of preventing swarming; for, doubtless, unless wisely handled, the means prescribed may cause much mischief, as may the over-fulfilment of technical details of any kind; but in regard to the subject in question, it ought scarcely to be supposed that any sane bee-keeper could seriously propose to stop swarming altogether. In healthy, well-to-do stocks, the *mania*—which it is desirable to fetter under certain conditions—lasts only a short time, but is most disastrously inconvenient when 'the 'show' is imminent, and 'the super' not quite sealed out; and it is under such conditions that the ability to prevent swarming is most valuable. It is possible that in stating that swarming could be 'positively prevented' we may have slightly erred, for, inasmuch as we have proposed to place the excluding diaphragm one remove from the hive-front, there is a possibility that though the queen would be unable to deposit eggs in the comb between them, the bees in the exercise of their 'instinct,' which is often so much like *reason* as to be in their case a distinction, with very little, if any difference, might carry eggs through the queen-excluder, and depositing them in the comb alluded to, raise a young queen that might lead away a swarm. This, we know, is trenching on debateable ground; but we refer to it to show that the possible contingency has not been forgotten.

As regards the question at issue, therefore, it may be presumed that few would desire to prevent swarming except during the two or three weeks when honey is abundant, and supers being filled; and if during that short period attention to drone-life is impossible, there is the proof on record that even though they die in the hive, and are not removeable, they do very little, if any harm.

A careful bee-master, however, having in view the completion of his supers, and the safety of his colonies, would not think of enclosing drone-brood in the queen's prison-apartment, nor drones either if they could be kept out, unless he thought, as we think, that they have a separate and special value beyond that usually supposed, that they would do no harm, and that it would be sufficient, having regard to the hygiene of the hive to rid it of the dead occasionally, by withdrawing and reversing the floor-board after dark.

Under any circumstances we claim that the principle of construction of the Combination hive affords more facilities for advanced bee-culture than can be found in any other. It can be used for supering, nadiring, storifying, and on the collateral principle though its extension be in a longitudinal direction, it is a non-swarmer at will, yet those who object to any of its capabilities will not find it necessary to adopt them, but they may use the hive as a simple bar-framer, and for simplicity it is unequalled. As exhibited it includes a Makeshift hive with moveable side, containing eight frames and quilt, with a floor-board, that when not otherwise in use acts as a tray under the main hive, to hold screw-driver, &c., and sufficient frames, sectional boxes, and diaphragms, and a close-fitting dummy (Fig. 1) to fill up the main hive. The sectional boxes are of the pattern

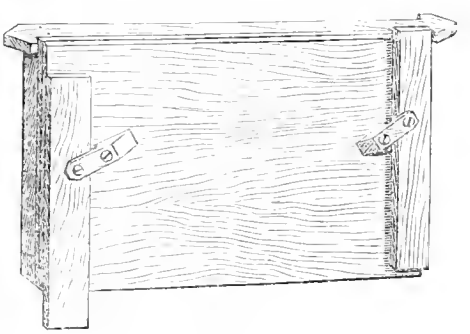


Fig. 1.

we invented, and propose to adhere to, being of handy size to hold near 2lbs. of honey (Fig. 2), and each being furnished with a strip of glass along the bottom, so that when filled and sealed, the colour of the honey may be seen. The excluders are fitted to frames, and are reversible (Fig. 3), permitting one comb to be worked in each frame, which if containing drone-cells can be turned to the outside of the queen's prison, or if the drone cells are in any other the latter can

be left outside, and the comb in the excluder-frame brought within the enclosure. As regards the deposition of pollen, it is well known that bees will store it in and around the brood-nest, and provision has been made for it by leaving a spare comb at back and front, to

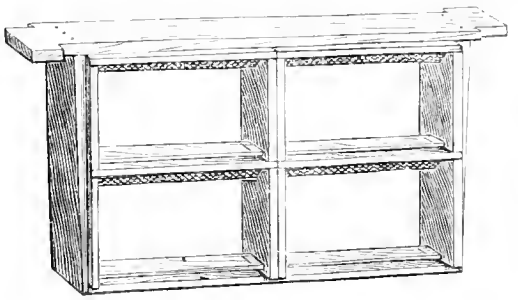


Fig. 2.

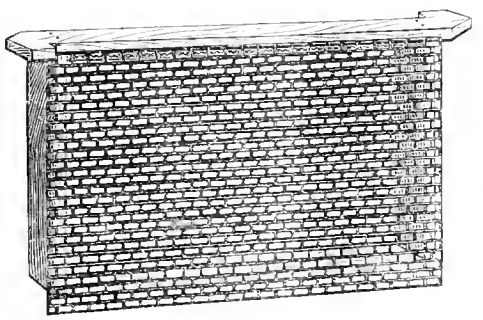


Fig. 3.

which the queen, not having access, it cannot be filled with brood, but may become the outer receptacles of honey and pollen. That the bees will not store pollen in other parts of the hive, we can no more ensure than that they will not carry eggs; for wherever bees can go they may possibly do either, but they are contingencies to which all hives are liable, though where the queen *cannot go* the probability of their doing so is remote.

As regards the mode of manufacture of the hive, it may be said that any one can make one box that will hold another, and that idea we had in view when, on p. 76, we said that any one with a notion of sawing, planing, and hammering, may make his own Combination.

We have all along maintained that for practical purposes unplaned hives are as good as the best finished, so far as the bees are concerned, but many desire ornament with usefulness. An ordinary Makeshift Standard is formed of four pieces of board, each half-an-inch thick, the front and back being 12 in. long, and $10\frac{1}{4}$ in. high, and the two sides measure 18 in. at the top, and $17\frac{1}{4}$ in. at the bottom when finished, and are $10\frac{1}{2}$ in. high; and the sides being nailed to the front and back form a box 12 in. wide, and 17 in. long at top, and $16\frac{1}{4}$ in. at bottom inside, the sides being higher than the back and front, so that when the frames are in their places they (the sides) can be planed down to make all flush and even. For a Combination body box of Standard size, four pieces only are required, two of $\frac{3}{4}$ in. board, 19 in. long at the top, $18\frac{1}{4}$ in. at the bottom, and $10\frac{1}{4}$ in. high to form the back and front, and two other pieces of inch board 24 in. long,* $10\frac{1}{4}$ in. wide to form the sides, the front and back in this case to be nailed to the sides, forming when 'cleaned off,' a box 24 in. from front to rear, 17 in. wide at top, and $16\frac{1}{4}$ in. at bottom, inside measure, *the front and back* being higher than the sides, so that the frames when laid across may be made flush, as in the former instance. The floor-boards must of course be made of the full out size of the bottoms of each box, and the roofs and stands according to fancy; but the foregoing conveys the essence of the principle, and any amateur carpenter can make the hive from the directions given.

QUEENS BY MAIL FROM ITALY—

DELIVERY IN ENGLAND REFUSED.

Italian queen-breeders have been greatly exercising themselves of late to discover the best means of sending queens through the general post, and their test package—two queens in a double cage, each with a few workers—was safely delivered. Encouraged thereby, three separate dozen of queens were sent during the week ending Sept. 22; but in each case the postal authorities refused to deliver them on the ground that they could not deliver what might possibly injure their carriers or sorters, or damage the contents of the letter-bags; and, probably through their having been left *out in the cold*, they were on delivery nearly all defunct. Queens thus sent in cages without comb, and with only slight provision, in the form of dried sugar, would probably survive a day or two's travel by post; but exposure while awaiting delivery to a dealer, and a further journey to the customer, exhaust their vitality.

Out of thirty-six queens sent to us from Italy, only three survived; and those who required them are thus, through the folly of the breeders, subjected to great inconvenience, and loss of time in their apiaries.

We can scarcely condone the folly of the breeders in this respect. All through the summer the queens sent in boxes were delivered in fairly good condition, the loss not being

* This will make a box capable of holding sixteen frames or their equivalent; if more space is desired at the back of the hive, and it is really very convenient to have plenty of it in so secure a position, and so readily concentable, more length should be allowed. Ed.

more than five per cent. Now by the new 'fad,' undertaken without proper understanding, it has reached nearly ninety-eight, or very nearly par. In our own interest, as also in that of those requiring queens, we trust no further experiments of the kind will be tried. —Ed. *B. B. J.*

'WAX CELLS' IN A 'WASP'S NEST.'

'The *Times* again! The great *Times!* The 'Thunderer,' that does not always enlighten—especially in bee matters—has given publicity to the following precious specimen of spontaneity. The poor dunce who penned the absurdity, writes of the 'wax-cells' of a 'wasp's nest,' and jumbles together the little he knows of neither as follows:—

'Spontaneous Combustion of Hives. (?) A remarkable instance of spontaneous combustion is afforded by a correspondent of a scientific contemporary, in which a house in Caracas narrowly escaped being set on fire through the sudden outburst of flame from a large wasps' nest in a closet under the roof. Although the weather was intensely hot, the position of the nest, under a roof composed of tiles and thick layers of earth, was such as to preclude the possibility of the fire having originated through solar heat. Suddenly thick smoke was seen to issue from the closet; and, had not immediate steps been taken to arrest the spread of the fire, a serious conflagration might have resulted from the combustible nature of the wax-cells of the nest. Similar occurrences are described as being very frequently observed in Venezuela. The temperature of bees' nests or hives is known to be very high, frequently reaching 38 deg. Centigrade or 100 deg. Fahrenheit, being considerable more than the normal temperature of the human body. The variety of honey-collecting insect known as melipone, whose nest resembles that of the wasp, is common in Central America and the northern parts of South America, and it is probable that their nests have frequently been taken for the nest of the wasp. The phenomenon is probably caused by some chemical change in the constituents of the nest under the influence of the high temperature, and it is possible that the same danger would await the nest of the ordinary hive-bee under favourable circumstances. The point is worth further investigation in temperate as well as torrid climates; and bee-keepers, both at home and in the colonies, may draw a practical lesson from the facts related in connexion with the regulation of the temperature of their hives.—*Colonies and India.*'—(*Times, Sept.* 16*th*, 1878.)

Wax-cells of a wasps' nest, indeed! Did the writer hear of the paper-sells of the *Times?*—Ed.

THE BEES' CELL IN THE *TIMES* NEWSPAPER.

Several letters have appeared in the *Times* of late through the Reverend Charles Lacy, a London Rector, having, with more learning than knowledge, asserted that the cells in a bee-hive are forced into their hexagonal shape by the pressure of the bees within each of them, and, in effect, denying them the slightest intelligence in their manner of conducting their wonderful architecture. He says 'The effect is entirely geometrical, and the will of the animal has nothing whatever to do with it!' A son of the Emerald Isle is said to have described the mode of making ordnance as simply 'taking a lot of big holes and putting iron round them;' and Mr. Lacy's notion of the way in which bee-cells are made appears to be somewhat similar. The bees individually are supposed to get into holes and put wax round them; they are said (by Mr. Lacy) 'not only to cluster side by side, but to work in a double plane, head to head;' and each bee, as it works away at its cylinder, 'is surrounded by as many others as can get close to it,' and because it is a geometrical law that six circles produced round a seventh of the same diameter, will exactly touch each other and it, the cylinders which the bees make by the 'circular motion' of their heads, touch each other also, and then, by a powerful effort of the imagination, the bees, whose bodies are round, are supposed to press in every direction at one and the same time, and cause the cells to become hexagonal. From the whole tenour of the letter we very much question whether the reverend writer ever saw a slab of comb in his life.—Ed.

No. 1.

THE BEE'S CELL.

Sir,—In your excellent article on Mr. Romanes's lecture on animal intelligence at the British Association, you allude to the case of the bee's cell, and say, in reference to the mathematical properties of the hexagon, 'We must either admit that every bee solves a difficult mathematical problem, or else that this problem has been solved for all bees in the construction of their nervous centres.' Either of these admissions implies that the bee itself makes its cell in a hexagonal form. There is, however, a simpler explanation. The hexagonal form is, quite independently of the bee itself, the necessary mechanical result of the mode in which the bees work, and the cells could not by possibility be in any other form.

The case is this:—The instinct of the bee is to make a cell in a cylindrical form by the circular motion of its head, just as a silkworm makes its cocoon, or a burrowing animal its hole. This is shown by the outer cells of every honeycomb, which are always semi-cylindrical where there has been no pressure from the inside. If a bee, therefore, worked alone, its cell would be cylindrical. Another instinct of bees, however, is to swarm and crowd together in everything they do. They thus work at their cells side by side, and every bee as it works away at its cylinder is surrounded by as many others as can get close to it. That number is exactly six, neither more nor less. Any one may ascertain this for himself by placing a coin on a table, and then putting round it as many similar coins as he can. He will find that six such coins will exactly touch each other, and each exactly touch the central one. This is the geometrical law which produces the hexagonal form of the cell. Each bee is pressed upon by six others (excepting, of course, the extreme outside ones), and thus the interstitial curves of the cylinders get squeezed out as they are made, become straight lines by the mutual pressures, and every cylinder necessarily becomes a hexagon as its ultimate form.

The same cause produces the peculiar prismatic form at the bottom of each cell. The instinct of the bees is

not only to cluster together side by side, but also to work at their cells in a double plane, head to head. Each bee, therefore, as it works its head round from a hemispherical end to its cell has six other heads pushing round it in the opposite direction, trying to do the same thing. The necessary result is the prismatic form we see.

The formation of the hexagonal cell is thus as entirely mechanical as when a horse tethered to a peg describes a mathematical circle by being put into a gallop. He is trying all the time not to describe a circle, but to go off in a straight line; but the restraining cord, tightened by his efforts, becomes a radius, and a circle is the necessary result.

In both cases alike, the effect is entirely geometrical, and the will of the animal has nothing whatever to do with it.—I am, your obedient servant, CHARLES LACY, *Rector of Allhallows, London Wall.*

No. 2.

Sir,—The rector of All Hallows, London Wall, in his clever remarks about and illustration of the mathematical properties of the hexagon as exhibited in the bee's cell, takes exception to the following passage which appeared in the *Times* two days ago:—

'We must either admit that every bee solves a difficult mathematical problem, or else that this problem has been solved for all bees in the construction of their nervous centres.'

He then goes on:—

'Either of these admissions implies that the bee itself makes its cell in a hexagonal form. There is, however, a simpler explanation. The hexagonal form is, quite independently of the bee itself, the necessary mechanical result of the mode in which the bees work, and the cell could not by possibility be in any other form.'

Will the rev. gentleman be pleased to tell us how the bees happened to fall into the peculiar mode of working, the necessary mechanical result of which is the construction of a hexagonal cell?—I am, Sir, faithfully yours, CHARLES LONGUET HIGGINS, *Turvey Abbey, Beds, August 28th.*

No. 3.

Sir,—I had hoped that some abler advocate than myself would have replied to the ingenious letter of your correspondent of the 27th inst. upon the above subject. I do not pretend to establish the fact of the superhuman cleverness of bees, but some other explanation than that given for the form of their cells is surely requisite; for that explanation supposes that a comb is commenced on each side simultaneously throughout its whole plane, and carried on, in the case of each cell, exactly *pari passu*.

Except in the outside cells, there is never, I believe, the smallest deviation from the hexagonal form; but there would be such deviation if the work ceased in any one cell for but a short time, as, the pressure being removed, the adjoining cell would take a circular form.

Your correspondent assumes that the cell of a single worker would be circular. How does he account for the hexagonal form of the cells formed by the single efforts of a queen wasp, working with a less malleable material than wax? As to the outside cells, granted that the bee is clever enough to adopt the hexagonal form where no room can be spared, she will not be at the trouble to do so at the extremities of the comb, where that economy is not necessary.

I may add that I am no bee-keeper, and practically know little of their manner of working; but, as a believer in their marvellous instinct, I would not willingly give up my old faith, though I would wish to elicit information upon a subject of so much interest.—I remain, Sir, your obedient servant, INQUIRER, *August 29th.*

No. 4.

Sir,—Your correspondent 'The Rev. Charles Lacy,' in his letter which appeared in the *Times* of the 27th inst., theoretically, and probably mathematically, shows a very plausible solution of the question as to how the bee's cell is formed were his premises correct, but his description of the mode in which the cells are constructed by the bees clearly indicates to me that he has never seen bees actually at work constructing their cells, and I trust you will give me a small space to reply to his theory. Mr. Lacy concludes that the cells are built up by the bees from the inside of each cell. That is not the case. They are lengthened and built up from the edges of each cell, which is continually being drawn out as fresh wax material is added to such edges. In proof of this fact, honey cells are sometimes as much as 2in. or 3in. in depth. Then cells are filled with honey as they progress, and are kept constantly full to within the tenth of an inch of their surface. How could a bee work inside such a cell? Again, how does Mr. Lacy account for equal pressure when five-sided cells are made; and how does he account for any inside pressure at all, when the bees construct drone cells, which are large enough to contain, not only one worker bee, but full the seventh part of another (the space occupied by seven worker cells being equal to that occupied by six drone cells)? What, therefore, becomes of his equal pressure when the bee cannot fill the cell to press it outwards? Still, the drone cells are as pure hexagons as the worker cells.

Further, with regard to the construction of the ends of the cells, a piece of comb is sometimes found in a hive with cells only on one side, and a flat surface on the other. Where, then, are the six heads pushing in the opposite direction; but there never can be six heads on the opposite side of the end of a cell, which Mr. Lacy may see by holding up a piece of comb to the light, on which he will find the base of the cell touching only three cells on the opposite side, not six.

I have spoken above of five-sided cells. If your correspondent will examine a piece of comb containing both drone and worker cells, he will find plenty of five-sided, and even cells of a much more irregular form constructed by the bees in the transition of the comb from worker to drone comb.

I could show several more errors in Mr. Lacy's statements, but I fear I am trespassing now too much upon your space on so simple a question as the bee cell; but after observations made on bees during a period of nearly forty years, I have never seen a bee turning round in a cell. If a bee wishes to change its position in a cell, it backs out of it and enters in another position.—I am, your obedient servant, J. G. DESBOROUGH, 12 *St. Peter's Hill, Stamford, August 28th.*

No. 5.

Sir,—In none of the letters on this subject which have lately appeared in your columns has any reference been made to one remarkable fact, which, with your permission, I will briefly describe. It appears to me to bear on the economy of nature in respect to the quantity of wax expended on each hexagonal cell. The cell is an hexagonal prism on a plain base, its other end being formed of three equal rhombuses meeting in a blunt point. Now it admits of mathematical proof that—given the amount of service, or, we may say, of wax—the cubic contents of such a cell will be greatest when the angle of inclination of each rhombus to a plain parallel to that of the base is 35 deg. 15min. 51sec., and this, or a very close approximation to it, is just the angle adopted by the bee. (*Vide* an interesting article on the cells of bees in Hall's 'Differential and Integral Calculus.')

Whether a form of cell so curiously adapted to its purposes is due simply to the crowding together of bees in gangs of six, or to some occult force acting in the brain of each bee, is a question on which I am not competent to enter deeply.

To my mind the latter hypothesis appears the most reasonable.—I remain, Sir, your obedient servant,

DIFFERENTIAL.

No. 6.

Sir,—Some fifteen or twenty years since I published in the Transactions of the British Association for the Advancement of Science the record of a series of experiments made by myself to ascertain the initial form of the cells formed by the bee. These experiments were quoted by Mr. Charles Darwin in his *Origin of Species*, after having been repeated by himself.

I succeeded in causing bees to build single cells, and others in groups of three, four, or more together. The single cells were always cylindrical. Those in groups were flat-sided where they were in contact and curved on the other sides.

Each cell, as ordinarily commenced at the margin of an extending comb, is a hemispherical cup; it is usually raised up into a six-sided cylinder, because it is surrounded by six other cells, and is necessarily of that shape. The outer cells of a comb, whether made by bees or any species of wasp, are never hexagonal on the outer sides. The conclusion that my experiments appeared to favour was that the cells, commenced circularly, were built up hexagonally, because six circles can be placed around one other circle of the same size, and that if it were a geometrical fact that eight circles could surround one other, then the cells would be octagonal. In making the transition cells, intervening between those for drone and worker larvæ, which are of different sizes, cells of various shapes are constantly produced; some of these are so small and irregular that they will not contain the body of a bee. May I beg, as a practical observer, to confirm Mr. Desborough's observations as to the irregular form of many cells, and the utterly untenable character of the theory that they are pressed into the hexagonal shape? The cells, as he remarks, are raised up from the foundations by being added to at the edges.—Yours obediently, W. B. Tegetmeier, 346 *Strand*.

The following letter was sent for publication on the 29th, but did not appear, probably through its having been forestalled by that of Mr. Desborough.—Ed.

To the Editor of the 'Times.'

Sir,—I am extremely unwilling to rush into print, having no time for newspaper controversy; but seeing a letter by the Rector of All Hallows, London Wall, in a late edition of the *Times*, upholding the theory that 'pressure' is the cause of the bee-cell's hexagonal form, I feel bound, as a practical bee-keeper, to protest against it as untrue and misleading. Moreover it robs the bee of 'the ray of divinity' implanted by the Creator in its 'nervous centre,' which teaches it instinctively to *build* true hexagons as a rule, and where any departure is necessary to do the best under the circumstances to economise space, labour, and material. Your correspondent evidently argues from his study, and not from a bee-garden, or he would know more of the construction of the *prismatic form at the bottom of each cell*, and that it is only possible for three bees to *press*—if pressure has anything to do with it—on the opposite side of any single cell, for the centre of the base of each cell is the point of intersection of the walls of three other cells on the opposite side which surround it; and it is therefore *impossible* that 'six other heads,' as described by your correspondent, can be 'pushing round it.' The bases of cells are first constructed, they are each formed of the lozenge-shaped plates, each plate being somewhat like an 'ace of diamonds;' and if your readers will cut three alike of any dimensions in cardboard, and gum their long sides together, the prismatic form of cup such as the bees deliberately *build* will be produced, though the angles may not be the same, and on each of the six sides of this cup the bees *build* their cell walls, each wall being flat and forming one side of two adjoining hexagons. Where, may I ask, is the 'pressure' theory when the bees build drone-comb? Drone-cells are built by worker-bees, and are one and a quarter times the diameter of worker-cells, so that if pressure were a reality instead of a myth, the cell walls would be distorted, for they are far too large to permit a worker-bee to press on all their sides at once, yet they are perfectly hexagonal, and to my mind prove the case as you put it 'that the problem has been solved for all bees in the construction of their nervous centres.'

Again, where is the pressure theory in regard to the cells in a wasp's nest? They are all perfect hexagons, yet the queen wasp alone begins the nest, builds a single cell, and gets no assistance until she unaided has caused the evolution of her own offspring; and then cell by cell, the nest is increased, each cell being *built* of the most perfect state, and not squeezed into form as dogmatically asserted by the unpractical Rector of All Hallows.—C. N. Abbott.

THE PARIS EXPOSITION.

The *American Bee Journal* in its account of the Paris Universal Exhibition (by Argus) presumes that 'the multiplicity of other sights monopolised so much of Mr. Abbott's time and attention that he failed to notice while here (Paris) the elaborate display in the American department,' by an American firm that always tries 'to be abreast, and to this firm's enterprise the bee-keepers of the United States owe a fine exhibition of their honey.' Now we do not profess to be 'Argus-eyed,' and consequently hope to be excused if we fail to see on what grounds the products of bees were exhibited at all. The eighth group in the 'system of general classification' adopted by the Royal Commission, relates to 'Agriculture and Pisciculture, and includes Class 83,' *i.e.*, 'Useful Insects and Noxious Insects,' and this is subdivided into four sections as follow:—

(1) 'Bees, silkworms, and other varieties of the Bombyx tribe.'

(2) 'Cochineal insects.'

(3) 'Apparatus used in the culture of bees and silkworms.'

(4) 'Apparatus and processes used for the destruction of noxious insects.'

It will thus appear that in the first section it was competent on the part of any one to exhibit 'bees,' living or dead, and in the third, to exhibit 'apparatus used in their culture,' but in no class or section can we find an excuse for the reception by the Commissioners of the goods mentioned by 'Argus,' unless it be Class 73, which provides for 'Condiments and Stimulants, Sugar and Confectionery,' for it is certain that 'bee products' were in no way anticipated. We have no desire to be severe, but if we mistake not the firm so highly eulogised by 'Argus' is that which supplied the genuine 'Yankee stuff' (see p. 122 of *Journal* for November last) that procured the conviction of a Scotch grocer on August 22nd, 1877—genuine 'stuff' that was adulterated with 57 per cent of glucose. Our allusion to the absence of American exhibits was simply in

respect of such as were the object of our search, viz., '*Apparatus used in the culture of bees.*'

Had her hive-factors shown one half the energy of her honey-factors, there is little doubt but that we should have cheerfully acknowledged our obligation to them.

SHOWS—NOTES BY THE WAY.

By an Hon. Sec.

Hon. Secretaries ought not to be too easy with exhibitors, but should insist on all entry forms being properly filled in and returned in due time, or to shut them out. He ought also to take more care that when exhibits are sold to have them marked 'Sold,' and so prevent goods being sold twice over. He ought also to keep the place of exhibition clear of all people (except those engaged in the work and exhibitors) prior to time of opening. He ought also to insist on the committee attending in larger force. He ought also to secure half-a-dozen gentlemen well up in bee talk to explain the various exhibits. He ought also to see that more publicity is given, and, if necessary, stick the bills himself. And a thousand other matters to make the thing what it ought to be.

THE EXHIBITION AT SOUTH KENSINGTON.

By D., *Deal.*

(*From the 'Journal of Horticulture.'*)

All honour is due to those who are so strenuously endeavouring to introduce the modern and humane system of treating the industrious bee, and who, in spite of prejudice, obstinacy, and ignorance, are year by year bringing forward the results of their labours. The British Bee-keepers' Association has already held its exhibitions at the Crystal Palace and Alexandra Park; and this year it has brought together the bees, bee-furniture, and all the various items connected with them, at South Kensington under the distinguished patronage of a lady who is ever ready to help forward in every good work, whether it be for the benefit of her fellow-creatures or for the good of the animal creation—the Baroness Burdett Coutts. The day was somewhat an unfortunate fixture, for, as the railway companies delivered no goods on the Monday, being Bank holiday, many of the exhibits were very late, and consequently the work of judging, &c., could not be proceeded with as early as had been intended; but there was a great muster of apiarians from all parts, much enthusiasm was displayed, and much useful information given. Instead, however, of going into minute details of each department as to who gained prizes, &c., we prefer giving a few general observations as to the most salient points of the Exhibition.

We were particularly struck with the almost universal adoption of modern bar-frame hives. Not only has the straw skep disappeared from the apiarians' catalogue, but the modifications of it, as in the old Woodbury, have also vanished, and wood is now the universal material of which hives are made. Improvements on these are taking place every year, and in the Stewarton, the Philadelphia (Messrs. Neighbour), the Standard (Abbott), Lee's and others, we seem to have attained all that is needed. Each year has witnessed some improvement, but, after all, Abbott's, which again took the first prize, leaves nothing to be desired. The wire pin to the boxes has been superseded by the broad shoulder, making it much firmer, and various internal improvements have been added. An ingenious plan of shutting off the bees, so as to prevent swarming, by a zinc perforated frame, seemed to be very ingenious, for a very general complaint this year was that the bees would swarm. Very few large supers were exhibited, and super honey was by no means plentiful; and this is one of the things which confirm cottagers in their prejudices.

Another prominent point was the universal use of the quilt. When Mr. Abbott introduced it some years ago it was denounced by some influential bee-masters as an American invention of no use whatever; yet now we find it in nearly every hive, and experience has only confirmed the good opinion expressed concerning it and suggested improvements. Formerly a piece of carpeting was used, but it was found that the bees disliked the woollen material and picked it to pieces, making a mess with it, as they will do with tape if the combs be tied in with it at any time. Hence the best fabric for putting next to the bars is the hair-cloth which is used for covering the strainers used in kitchens. It is hard and yet porous. On this may be placed carpeting or any other woollen material, such as house-flannel, which will keep the hives warm during the winter. It is very convenient, too, for examining the hives at any time; and when they have to be fed a hole is made in the centre, on which the stand for holding the feeding-bottle is placed.

Then, again, there was a very general use of the zinc adapters, by which when supers are placed on the hives the bees have access to them through the perforations in the zinc, which are of such a size that the workers can alone get up, the drones and the queen being unable to get through. Latterly the oblong perforations seem to be more in vogue, but they hardly seem to be so effective as the round. There seems to be more possibility of the queen and drones getting through, and moreover it does not rub off the pollen as the round does; but it must be noted that it does sometimes happen that the bees will not return, and I have found in one of my supers this year a good quantity of dead bees. Hence some apiarians adopt the plan of cutting a small hole in the super to let the bees go out if they like and carry out their dead. Why this should happen we are at a loss to conjecture, for in other hives they work up and down most freely and seem to find no difficulty; but we know how stupidly bees when they get into a greenhouse will persist in flying up and down the glass, and eventually killing themselves, although the sash in the very next division may be wide open; but these exceptional cases do not detract from the great usefulness of the zinc-adapter.

Equally general is the use now of the sectional supers: these were shown by Messrs. Abbott, Lee, and Horne, Mr. Lee taking the prize for the best and cheapest. These supers are very valuable, containing from 1 lb. to 2 lbs. of comb each, and so presenting comb honey in a saleable form to the public, and thus meeting one of the great drawbacks to bee-farming in this country. There is a vast quantity of trash imported under the name of Narbonne, Californian, and other honey, of which a great portion is little better than syrup, and this is sold so cheaply that home-made honey is not easily got rid of. When people go to Switzerland they are delighted to find *miel en rayon* on the breakfast-table, but when they return to England honey in the comb is looked upon as 'bilious,' or something of that kind, and so refused. Why do not our large pauper schools use it for the children instead of butter? and if some eminent physician would only act as a bell-wether, and proclaim honey in the comb to be an excellent thing for the complexion, the family would soon follow, and we should find it then on every breakfast-table throughout the country. These sectional supers are excellent for the purpose of sale. Many persons would hesitate to buy supers of 20 lbs. or 30 lbs., but these handy little boxes are just the thing to take home without any bother, and I have no doubt they are destined to supersede all others.

It was noticeable, too, that all the toy adjuncts of bee-

keeping have vanished. There are now no elaborate bee-houses with first, second, and third storeys; no pagoda-like structures suggestive of the very essence of Cockneyism. All is now utilitarian, but not at the expense of neatness. Nothing can be neater than the hives of Messrs. Abbott, Lee, and others, but it is at once seen that the object is use not ornament; and as they are now made with moveable covers, each one can stand by itself protected from the weather, and thus not so exposed to the depredations of wax-moth, spiders, mice, &c., as when they are in houses.

In the tent the manipulation of bees according to the new method was fully explained by Mr. John Hunter, while Mr. Abbott and other bee-masters showed how easily bees were managed. Driving, uniting, transferring, and all the various methods adopted by modern bee-masters, were shown, much to the astonishment of the visitors, many of whom evidently seemed to think that there was some special means adopted to prevent the bees from stinging. Ligurian and British bees were also shown, and an admirable observatory hive by Mr. Brice-Wilson attracted general observation. There were two exhibits deserving especial notice; one a Portuguese hive, exhibited by the Rev. J. F. Scott, an experienced bee-master, and which is of the same kind as that described by Virgil in the Georgics; and some honeycomb made by bees in the Strand—partly artificially fed, partly gathered from the flowers on the Embankment. Altogether the Show was a great success, so much so that it is, we believe, in contemplation to repeat it next year in the same place. We should be sorry to add a word to damp the ardour of our friends, but as yet do not see that we have made any inroad on the cottagers, who do not appear to have abandoned the old straw skep and the sulphur pit; as yet it is the few who have seen the advantage of the modern system.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

The September meeting of the Society was held in the Show-yard, on the 7th September; thirty members present. The only business of importance was the notice of resignation given in by the Secretary. The President expressed the general opinion that Mr. Raitt should reconsider his proposal, and a committee was appointed to endeavour to arrange the matter. Mr. W. W. Young, referring to the fact that in two cases prizes in the same class had fallen to members and their wives, moved that only one prize go to one house. But the motion found no seconder. On it appearing that in both cases the ladies were *bonâ fide* members, and possessed their own hives, it was remarked by the President that it would be well if all members would also make their wives such. The Show Committee having reported, and votes of thanks having been awarded to the judges, and Mr. E. Bailey, the meeting closed.—WILLIAM RAITT, *Secretary.*

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

The fourth meeting of this Society was held in Innes's Temperance Hotel, Hutchison Street, Glasgow, on Wednesday, 18th September, 1878.

On the motion of Mr. Wilkie, Mr. R. J. Bennett was called to the chair. There were also present Messrs. Laughland, Muir, Sword, Montgomery, Kinloch, Towers, Young, Wilkie, Johnstone, Aitken, Munro, Butler, Crighton, Tweedie, Douglas, and Captain McLaren.

The clerk read the minutes of last meeting, which were duly confirmed. The secretary and treasurer then read the yearly report. He was very happy to say that the Society was increasing in usefulness, and from the number of letters he had received making inquiries as to the best means of forming nucleus societies, &c., and the steadily increasing membership, he concluded that they were in a very healthy condition; but as the work had gone on increasing from year to year, he felt that he could no longer give the time and attention necessary to do it well, and he had therefore to ask the Society to appoint a committee to look out for a successor, even though it should be a paid one, as he felt no business-man could be expected to devote that time to the affairs and communications from members of the Society which was now required. So far as the finances were concerned, he was glad to be able to report that the income this year was up to the present time in excess of the expenditure, and he was here to-day to pay all prize monies and other claims connected with this year's proceedings, which amounted to the large sum of 98*l.* The handsome cup on the table before them was won this year by Mr. Steele, of Foulis, and he was only sorry that he was not with them that day.

A general conversation ensued on the Report. The secretary and treasurer was highly commended for the manner in which his work had been done. The Report was approved, and Mr. Bennett was asked to continue in office for another year, the members promising to look for a successor during the year ensuing.

With the view of enlarging the benefit accruing from this Association it was stated by several members that local societies had been formed in several districts; and while this was much approved the hope was expressed that other districts would soon move in the same direction, the general secretary consenting to give them personal aid in their efforts.

A letter was read from Mr. Montgomery taking exception to the judging in one of the departments at the last show; but after hearing the judges and Mr. Montgomery, who stated that he had written the letter not from his own observation, but from another's evidence, the meeting cordially affirmed the awards: the points for judging being purity, completeness in sealing, and straightness and thickness of comb.

Preliminary arrangements were then made for the forthcoming Perth Show, and it was decided to overhaul the last schedule with the view of better fitting it for use at that show, the members being strongly importuned to send in suggestions for its improvement.

The prizes and other claims were then paid, and the meeting separated after voting thanks to the chairman for his conduct in the chair.

ERITH AND BELVEDERE NATURAL HISTORY SOCIETY.

On the 17th ult., a meeting of the above Society took place, at which 'Bees' was a subject of special attraction; and the bee-show so far a success, that next year a repetition on a larger scale will be attempted, in the hope of further enlisting the sympathies of neighbouring cottagers. We had the pleasure of 'loaning' a set of diagrams of bees, &c., for the occasion, for which we have received the thanks of the council by whom our 'Leaflets for the Million' were freely distributed.—ED. *B. B. J.*

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY HONEY SHOW.

This Society is holding its third exhibition in conjunction with the Dundee Horticultural Society's Show. The exhibition was on a grander scale this year than has probably ever before been held in this country. The quantity of honey shown was something extraordinary. Great improvement has been made in the style in which honey is put up. The tendency is to introduce small parcels, and the American-made sections containing 1 lb. are special features of the show. In one pile Mr. Raitt, of Liff, exhibited 130 of these sections as the produce of one hive, and the centre table, on which was placed a

large number of sectional supers was a perfect treat. Many fancy designs of honeycomb worked by the bees are shown, and representations of stars, circles, hearts, &c., are on view. As showing the enterprise of the members of the Society, it may be mentioned that no fewer than five observatory hives have been put forward for competition, notwithstanding the fact that the prize-money offered has been largely reduced in comparison with former years. Two cases containing 'bykes' of wild bees attracted much attention. The interest taken in this department was very keen, and from the number of people who made a close examination of the bees considerable difficulty was experienced in getting a good sight of them.

The judges were—Mr. Alex. Shearer, Yester Gardens, Haddington; Mr. Smith of Gordon and Smith, honey dealers, Aberdeen; and Mr. Wm. Mann, Blairgowrie.

The following are the prize-winners:—

Class A.—Honey and Wax.—Largest and best harvest of super honey, the produce of one hive—1, J. H. Edwards, Fowlis; 2, Mr. Page, Falkland; 3, J. L. Brebner, Inchmarlo. Largest and best harvest of super honey, the produce of one hive, in cases not over 5 lbs. each nett—1, William Raitt, Liff; 2, J. Stewart, Arbroath; 3, James Lorimer, Monifieth. Best single super, in wood or wood and glass, over 20 lbs.—1, James Lorimer, Monifieth; 2, David Ramsay, Baldovie; 3, J. D. Ker, Douglasfield. Best single super, in wood or wood and glass—1, D. Ramsay, Baldovie; 2, John Stewart, Arbroath; 3, James Lorimer, Monifieth. Best single super, in wood or wood and glass, under 10 lbs.—1, John Lorimer, Broughty Ferry; 2, A. Watson, Milnathort; 3, John White, Falkland. Best sectional super over 20 lbs., combs separable, and not over 4 lbs. each—1, John Stewart, Arbroath; 2, Wm. Raitt, Liff; 3, D. Ramsay, Baldovie. Best super in straw over 10 lbs.—1, W. Raitt, Liff; 2, A. Watson, Milnathort; 3, Wm. Tarbat, Dunnichen. Best super in straw under 10 lbs.—1, A. Watson, Milnathort; 2, R. Steele, Fowlis; 3, D. Ramsay, Baldovie. Best super of heather honey over 10 lbs.—1, G. A. Rollo, Lintrathen; 2, R. M'Gregor, Inchmarlo. Best super of heather honey under 10 lbs.—1, R. M'Gregor, Inchmarlo; 2, G. A. Rollo, Lintrathen; 3, R. M'Gregor, Inchmarlo. Finest straw super, not over 7 lbs., special prize 1*l.* 1*s.*, given by Messrs. Scrymgeour and Sons, Dundee, the honey to become their property—A. Watson, Milnathort. Prettiest design in honeycomb worked by bees—1 (a honey extractor, value 1*l.* 9*s.*, given by W. W. Young, Perth), W. Ross, Inchmarlo; 2 (10*s.* 6*d.*, given by E. Bailey, fruiterer, Dundee), W. Ross, Inchmarlo; 3, Mr. Wm. Raitt, Liff. Run or extracted honey, 6 lbs. in show glass, fruit blossom honey—1, John Reid, Ballindean; 2, J. D. Ker, Douglasfield; 3, Charles Carnegie, Marykirk. Run or extracted honey, 6 lbs. in show glass, clover honey—1, Thomas Waters, Milnathort; 2, A. Watson, Milnathort; 3, Charles Carnegie, Marykirk. Run or extracted honey, 6 lbs. in show glass, heather honey—1, R. M'Gregor, Inchmarlo; 2, R. M'Gregor; 3, John White, Falkland. 2 lbs. wax—1, Thomas Waters, Milnathort; 2, W. Raitt, Liff; 3, R. Steele, Fowlis. Six sheets impressed wax foundations—1, J. T. Kinnear, Newport; 2, W. Raitt, Liff. Special prize, to the cottager gaining the largest number of prizes in the honey classes—a bar-frame hive, given by R. Steele, Fowlis—not decided.

Class B.—Hives, &c.—Best bar-frame hive, complete, with floor-board, super, and roof—1, R. Steele, Fowlis; 2, James Guild, St. Vigeans. Cheapest bar-frame hive, suitable for cottagers, with floor-board and roof—1, R. Steele, Fowlis; 2, R. M'Gregor. Best honey extracted, combining cheapness with general efficiency—1, R. Steele, Fowlis; 2, Wm. W. Young, Perth. Best form of super for general use, in an apiary, must be cheap, workable, and saleable—1, W. Raitt, Liff; 2, R. Steele, Fowlis. Best and neatest observatory or unicomb hive stocked with bees—1, J. Stewart, Arbroath; 2, Henry Lorimer, Coldside; 3, R. M'Gregor, Inchmarlo. Best collection of apiarian appliances not included in the above classes—1, W. W. Young, Perth; 2, R. Steele, Fowlis. Any new invention calculated by the judges to be of advantage in bee-keeping. A second prize—awarded to R. Steele—a comb-rack.

THE CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY'S HONEY SHOW.

The Caledonian Apiarian and Entomological Society's fifth show of bees, honey, and hives, and honey fair, were held in the new public hall, Kent Road, Glasgow, on Wednesday, the 4th ult., which, so far as honey was concerned, was the largest and most important yet held by this flourishing Society, exhibits having been forwarded from all parts of the country, and some even from California, to compete for the prizes offered by the Society. The principal prizes for supers of honey were as usual carried off with some beautiful 'Stewarton' boxes by well-known Ayrshire bee-keepers. The glass globes from Dumfries and Ecclefechan were universally admired, and deservedly won in that class. Heather honey had few competitors, but those exhibited were of great merit, the first prize being secured by our old friend, Mr. Sword, Falkirk, the majority of the other prizes in this class going to Arran. In run honey there was strong competition, there being about a dozen of exhibits claiming the attention of the judges, who in this particular case had a most difficult task to perform, the exhibits being each and all of such excellence it was hard to determine which was entitled to the laurels, but after careful consideration the awards were carried off by 1st, Wm. Laughland, Kilmarnock; 2nd, Thomas Tennant, Ecclefechan; 3rd, Walter Thornburn, Ecclefechan. One case, at least the bouquet or flavour, was even superior to some of the prizes taken. The entomological department of the show attracted not the least attention, in which the Secretary, Mr. R. J. Bennett, came to the front with a large collection (in glass cases) of beautiful mounted specimens of various species of the British wild bees, wax-moths, and a great variety of British and foreign butterflies, insects, &c. &c. Mr. Paterson Struan sent a large and most beautiful nest, or byke, of hornets or wasps, exhibited under a glass shade. A junior member of the Society showed his enthusiasm by exhibiting in a glass case a strong colony of humble bees as a foil to the bees at work in the 'observatory hive,' showing the whole internal economy of the hive. The 'Lanarkshire Bee-keeper' exhibited an interesting collection of sixteen Lanarkshire supers, weighing upwards of 100 lbs. from one stock of Ligurian bees, wrought upon the Lanarkshire bar-frame '*ne plus ultra* and extension bee-hive,' with its ingenious ventilating floor, and portable stand for transit. The prize for the newest invention calculated in the opinions of the judges to advance the cause of apiculture was carried off by Mr. Robert Iliffe, of Hinckley, with his plaster cast and bath for producing comb foundations, which was considered by the judges to be of considerable merit, but deficient in so far that the sheets were only embossed on one side. Mr. W. W. Young, Perth, had a fine table of apicultural necessaries on exhibition, for which he was awarded the silver and bronze medals of the Society. Messrs. Austin and M'Auslan, Buchanan Street, Glasgow, had forwarded for exhibition a very complete lot of hives and other bee-furniture, for which they were awarded the certificate of the Society. The honey-fair was a complete success, every pound of honey, of which there were hundredweights, being sold off at sellers' own price, and in no case at less than 1*s.* 6*d.* per lb. even for run honey. What tended in a great measure to mar the pecuniary success of the exhibition was the alteration of the date of Show of the West of Scotland Horticultural Society from 12th to 4th September, so disarranging our plans. By an unfortunate arrangement of the directors of the Floral Society, their exhibition was held in the same building simultaneously with ours. Visitors were, on returning, compelled to pass out without being afforded an opportunity of inspecting the apiarian department, which was severely commented on all hands. The judges were Bailie Laughland, Kilmarnock, Mr. Wilkie, Gourock, and Mr. Young, Perth.

THE SHROPSHIRE BEE-KEEPERS' ASSOCIATION.

The Annual Exhibition of this Society, which was originated, and has since been mainly supported, by the exertions of the Rev. the Hon. C. Fielding, took place on Wednesday and Thursday, August 14th and 15th in connexion with the fête of the Shropshire Horticultural Society, and was held in the Quarry, a commodious tent being erected for the purpose, divided by a curtain into two parts, in one of which were the exhibits whilst the other was reserved for the manipulation of bees. The President this year is the Earl Powis. The display was not so large as could have been wished, but in some respects improvements were visible, and it is to be hoped that the cottagers especially will be induced hereafter to take more interest in the Society.

The bee manipulations were most instructive and interesting, not to bee-keepers only, but to all who take an interest in such subjects. The manipulator, who displayed great skill, was Mr. J. Abbott. The judges were the Rev. J. D. Glennie, Eccleshall, and Mr. J. C. Jones, Market Drayton.

Many hundreds visited the tent, and numbers expressed an interest in the movement and asked for schedules of prizes and reports of the Association. There is, therefore, much reason to expect that next year there will be a greater stir.

More than ten pounds' worth of honey was sold in the tent.

BEES AT THE STIRLING HORTICULTURAL SHOW.

The *Reporter*, commenting on the above show, which was eminently successful, says, 'The Stirling Apiarian Association must make up their minds to find much more space than the platform of the Corn Exchange Hall for their next exhibition. If they were a little disappointed at the small number of competitors they might well take heart of grace at seeing the immense interest displayed by visitors in their collection. The observatory hives were quite besieged from the opening of the show to its close, and the hives and other appliances connected with bee-keeping were critically and carefully examined. Bee-culture, although carried on to a considerable extent in this quarter, has not received the attention it deserves, both as a means of money-making and as a wholesome and interesting recreation; and such exhibitions as that of the Stirling Apiarian Association should be the means of diffusing a knowledge of better and more scientific modes of bee-keeping than prevail at present in our midst. There is no doubt whatever that bee-keeping, when properly carried on, is a paying concern. Besides the testimony of Mr. Raitt, who mentioned at the dinner the successful results of his operations, we may quote from the *Banffshire Journal* the experience of a bee-keeper in the north. He says, "Out of most of my top swarms I have extracted over 60 lbs. of run honey, besides taking 15 lbs. of super—making 60 lbs. at 1*s.*, and 15 lbs. at 1*s.* 6*d.*, together 4*l.* 2*s.* 6*d.*; besides having my hives in perfect order for the winter, which would add 1*l.* 5*s.*; giving a total of 5*l.* 7*s.* 6*d.*' Plenty more instances could be given did space permit. The prizes for run honey, gathered from heather and clover, all went to Touch, which is very favourably situated for bee-keeping, being finely sheltered by trees, and having clover and heather close at hand. The prize samples of honey were readily bought up at the show, and fetched 1*s.* 6*d.* per lb. R. Steele showed bar-frame hives of excellent construction, and very reasonable in price, and a great variety of utensils, such as supers, honey extractors, honey knives, wax smelters, feeders, &c., besides a bee-keeper's patent lotion for removing instantaneously the pain of stings of wasps and bees.

A LECTURE ON BEES AND BEE-KEEPING.

Suitable for delivery in village school-rooms, has been compiled by one of our correspondents, who is willing to lend it, free of charge, to clergymen or other gentlemen who will undertake to deliver it during the coming winter. It is not original, and is not intended for publication, but it contains selections from many of the leading writers on apiculture, strung together in an interesting manner. The idea of the writer is to assist those who are willing to enlighten others, but who have not had sufficient experience to justify them in attempting a strictly original lecture, nor spare time for the preparation of one. Of course original lectures, embodying the observations and experience of a life-time devoted to apiculture, would be infinitely preferable; but as there are few men capable of delivering such, we hail with delight efforts of any kind which are calculated to spread information that cannot fail to interest and instruct those who do not keep bees, and to increase the number of intelligent bee-keepers. Such compilations as the one in question, if well read, and illustrated by means of a few hives and appliances, a card of comb, and a set of the beautiful Italian plates, must be useful to the cause we all profess to have at heart. Communications on the subject should be addressed 'Winter Lecture,' care of the editor, and have a stamp enclosed to cover postage.

KILLED BY A WASP.—The papers recently contained the report of the death of a lady from the effects of a wasp's sting. So bees are not the only dangerous insects, as certain writers seem to imagine.

A LATE SWARM.—Mr. W. R. Vatcher, of Trinity Street, Dorchester, writes, under date September 3rd:—'A most extraordinary thing happened to my bees to-day. At half-past one a beautiful swarm left one of my old stocks, and alighted on a myrtle-tree close by the bee-house. They formed a splendid cluster, and I speedily hived them. They are now comfortably settled in their new home, and doing well. There is no mistake about its being a genuine swarm, with a very fine queen, as Mr. M. H. Tilley, the hon. sec. of our local Association, can testify. I have kept bees many years, but never had a swarm so late before.'

[This savours very much of having been a starvation swarm.—ED.]

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE COMBINATION HIVE.

I am anxiously waiting the appearance of your next number in order to see the further details respecting your 'Combination' hive, especially as to what we shall do with the projecting ends of the frames of the 'Makeshift' while it is in the 'Com-

bination,' and also particulars about the 'ingeniously constructed division board.'

Yesterday I removed your sectional supers from one of my Stewartons, and they are in splendid condition. Your zinc 'excluder' seems to have answered its purpose well.

In reference to your Combination, I think the idea is a grand one. My notion is, instead of putting in a wide frame behind the brood chamber I purpose using your sectional supers, twenty-four of which I find I could get in, besides leaving the top available for storing purposes. One thing, however, seems rather to militate against your plan: you say (p. 76, September No.) that 'the queen will deposit eggs in all the brood-combs on the front side of the zinc excluder, and the bees will as a rule deposit POLLEN on the other side.' Will not this pollen be likely to spoil the purity of the honey? Again, in the same paragraph you say that swarming will be rendered impossible by the interposition of the diaphragm between the first and second front combs. Will not that course effectually imprison the drones which are likely to be present at swarming time?—W. C., *Ilkley, Leeds, September* 20, 1878.

THE COMBINATION HIVE.

I have read carefully over your description of Messrs. Abbott Bros.' Combination Hive in September *Journal*, so far as it goes, and should like to notice some statements in it in order to get further information.

First, you state, 'It is the only hive in the world in which swarming can be positively prevented;' and farther on in the article you tell us how this is accomplished: by placing a queen-excluding diaphragm between first and second frame in front. This will undoubtedly secure the queen; but during the time the queen is thus imprisoned pray what becomes of Messrs. Drone? Undoubtedly they are all imprisoned also: a space that will not let a queen through will not let a drone. And suppose an apiary with six hives, five of which are managed on your non-swarming Combination-hive system and one hive devoted to swarming, if at any distance from other hives the young queens would have to intermarry with their brother drones or remain unfertile; and those of us who try to keep our Ligurian queens pure find the difficulty—nay, the impossibility—of doing so, showing that queens will not accept a mate of their own hive if others can be got. Please explain.

I next notice the position of your frames crosswise from entrance of hive. I do not think this is any improvement, but rather a retrograde movement; at least, it is contrary to all my experience of the way bees will build their comb if left to themselves. I have turned up hundreds upon hundreds of straw skeps, and if all their combs were not perpendicular with the front (entrance), they were all pointing in that direction; and I think that the late great Mr. Woodbury, in directing that the frames be placed perpendicular to front of hive, was not only making conveniences for bees (which you describe as 'moonshine'), but was also following the bees' natural instinct. Please give further light on the matter.—W. DUKE, *Newburns, Kirriemuir.*

THE COMBINATION HIVE.

There is a point respecting your new Combination hive which I should feel greatly obliged if you would clear up in your next *Journal*—a point that I think could not have been considered at the South Kensington or Exeter Shows by the judges, or they would not have awarded it the first prize: I mean the caging of the drones. You will remember our argument respecting it at the Westbury Show. I know you cannot say, Shut the drones up with the queen. What is to become of them? You told us they might be let out at the bottom of the hives, that of course would not do: so you said, Shut them outside; but that would not answer any better. I think, therefore, before you give the public the measurements, &c. (which you intend doing in your next issue), you had better give this your consideration, as I feel certain that if any one thing more than another would bring destruction to a hive of bees, it would be the caging of the drones. I think you were quite right in saying your Combination hive would make a good outer covering for any other bar-framed hive in winter, at the same time it would be too expensive for cottagers, as any rough box would answer that purpose. I fear the object in view at the present time is more the winning of prizes than the benefiting of the labouring classes.—ROBERT MANFIELD, *Monks Park, Corsham, Wilts, Sept.* 11.

[We are always thankful for being 'set right' when we have done wrong, but probably many of our readers may wish to know our correspondent's reasons for his confident assertions, and to save time we beg of him to enlighten the world with his views. Assertion is not argument, and the judges at the Kensington and other shows were evidently lacking the knowledge our censor is capable of imparting, and we trust he will set them 'right' also. We of course highly applaud his zeal for the benefit of cottagers and the labouring classes, but we cannot forget that there are other classes who are not content with cottagers' hives. We plead guilty to a desire for winning prizes when they are offered; doubtless it is very naughty, but it is also very nice.—ED.]

CYPRIAN QUEENS (MYTHICAL?)

'There may be bees in Cyprus, but little or no honey can be got, so I suppose the inhabitants do not cultivate them much. I am sorry I could not get some specimens, but just as I received your letter, I got the fever, so could not attend to what you wanted; and though I asked the steward of the ship to do what he could, he could not make the natives understand. In all the accounts of the produce of Cyprus, I have never seen honey mentioned at all.'—J. L. S.

[NOTE.—The above is an extract from a private letter, the authenticity of which is indubitable.—ED. *B.B.J.*]

DRIVING BEES INTO SUPERS—QUEEN EXCLUDERS, &c.

My last note to you advocated driving lazy bees up into supers. I *have* found it pay: this year it did not. The queen got into the upper one of a

pair of Neighbour's Octagons, and made a regular brood-nest, which she has kept replenished up to the end of August. I may observe that these supers were over a straw skep, and that the only access to them was through the orthodox 3-16 in. slots. Sir, I don't believe in queen-excluders—not, at least, of that width. They have failed with me this year, not by any means for the first time. Tell this to a believer in them, and he says, 'Yours must be a very small queen.' Well, that's theory; and my theory, confirmed by practical experience, is that, given a prolific queen, a smallish skep and supers, placed directly over the centre of the brood-nest and kept rather warm, there will be brood in the supers. I was annoyed with my poor dear queen; but think how she must have enjoyed a nice lot of white fresh combs after the tough black old things in which she had had to lay before—six or seven years old they are. You will be glad to hear that my two bar-frame hives—a Cottager's and a Standard—have between them brought me in about 40 lbs. extracted honey, and 7 lbs. or 8 lbs. of honeycomb, and that in spite of a Black Country town locality, and of frames in the Standard considerably deficient in comb at the beginning of the season. One frame (Cottager's size) placed with four others in a Makeshift box above the Cottage Hive, weighed on its *second* filling 7¼ lbs. gross, and produced 5½ lbs. nett of extracted honey.

Next week I hope to rescue two lots of Innocents from the Herod who would otherwise massacre them, and with them and the five empty frames of comb build up a stock for next year. I shall alter the entrance of a spare Cottage Hive so as to give your new idea of crosswise frames a trial.—Sic Vos non Vobis.

THE STRAW SKEP AT SOUTH KENSINGTON.

With regard to the exhibit of straw skeps for depriving purposes at South Kensington and Stamford, I can say very little more than could be seen of them. An ordinary straw hive with pine top has been used successfully for the past thirty years, very little attention being required after the swarm has been hived and the super put on and well covered down. I was the first to introduce this improvement upon the old straw skeps and brimstone pit, but could not get many converts to my system until just lately. Parties found I was making more from one than they could from four skeps, and still have my hives left well stocked with bees and provisioned for the winter; now several keep them upon my principle, which is considered simple and cheap, the cost of frame hives being a serious item to the labouring classes with their limited income. And whatever may be said of the system I have so many years worked upon, it must be the means of enabling those who have adopted it in time, by procuring good glass supers and selling at a good price, to buy for themselves the improved bar-frame hive, if they have bee-keeping at heart and do not grudge the price. Nine-tenths of the visitors to the late show at Stamford were delighted with what they saw, and many who did not go simply because they fancied there would be nothing to see are vexed because they were not there since they have had it described by their friends, or have had it through the press. I am afraid I am departing from the subject, if ever I clearly began one. Perhaps you may make a little of this scribble when dissected, and not condemn the straw skep with wood top too severely. In the season of 1874 I sent 12*l.* 10*s.* worth of splendid super honey to London, besides what I kept for home customers and own consumption about—5*l.* more. Perhaps some day I might write you more upon the straw hive and bar-frame when I am more versed with the use of the latter.—Wm. Sells.

REMOVING BEES FROM HOUSES.

A farmer, a friend of mine, has had for several years a great number of bees between the joists in his bedroom. This summer two more swarms have been added to their number. In consequence of their continual buzzing noise my friend cannot sleep at night, and wishes me to take out the bees and honey. I take the liberty to ask you, through your valuable paper, the best way for me to go to work to take out the bees alive, so that I may unite the bees taken out with some of my stocks in my apiary and what part of the day would you prefer to commence the operation.—George T. Conibeere.

[To enable you to utilise the bees, your apiary should be about two miles from the house they inhabit, or you must make up your mind to send them as far off when you take them.

On a fine day, about noon, when the sun is shining brightly, open the bedroom window and darken any part of the glass which cannot be removed, to prevent bees being hindered in their flight by buzzing against it. Smoke should then be freely driven into their nest, and the boards of the bedroom floor cut out, a process that will sufficiently alarm the bees and cause them to gorge with honey. When the combs are exposed, they should be cut out, and the bees brushed back into their nesting-place to form as it were a simple swarm; and, in the meantime, if your farmer friend will allow you to do so, the brood and pollen combs should be fixed into frames (as in transferring), and put into a bar-frame hive, which could then be set over the bees for their adoption. Should there be objection to the utilisation of the spare combs, a set of combs should be brought from your own apiary and placed over the bees, and in the evening, in either case, the whole could be removed. We are inclined to think that the providing of combs already securely fixed in a hive is the best course that could be adopted, as it would greatly shorten the operation in the room. Having skeps only, drive out all the bees, leaving them in a bare hive, as an artificial swarm on their own stand. Cover up the hive of combs and take it to the scene of operations, and instead of brushing the bees back into their nest, brush them into the skep; in the meantime taking the combs from the joists clear away, to be transferred at home and given to the bees which are in the combless hive. If bar-frame hives are in use, it is barely necessary to explain how to absorb the combs newly brought home into them; and if the combs cannot be had, it need hardly be advised that the said combless bees should be added to those which have newly taken possession of the hive from which they were originally driven. When bees are expelled from roofs or joists, it is positively requisite that means of access to the place should be securely prevented, or in an ensuing summer other bees will be almost certain to take possession.—Ed.]

THE *DAILY TELEGRAPH* ON BEE-KEEPING.

The *Daily Telegraph* on Tuesday, the 20th August last, in a 'leading article' on the Hawarden Flower Show and gardens in connexion therewith, says,—

'Then, too, there is another way in which the garden can be utilised. If the occupants of the cottage understand the culture of bees, nothing will pay them better than to keep their little patch stocked with such flowers as bees love, and which are at the same time beautiful in themselves. Roses, and mignonette, and wild thyme, and balsam, and heliotrope, and sunflower—these, with dozens of other ordinary hardy annuals that might be mentioned, will always make a garden a pretty show, and will feed hives, the yearly produce of which will go far towards the rent, if, indeed, it does not actually pay it. One could wish, indeed, that in connexion with flower shows, such as that recently held at Hawarden, there was also a bee and honey show, and that prizes were given both for flowers from cottage gardens, and honey from cottage hives.'

BEE-KEEPING IN PERTHSHIRE.

We have had a capital summer here for bees, but the place is that poor in pasture that we got no supers from them, and the weather has been very bad since the heather came in bloom, so that if the next fortnight should be like the last we will have nothing to 'crow about.' I put my bees all up the hill-side, right among the heather; some I eked, and others I supered, before putting them to the hill. My heaviest swarm was 61 lbs. hive and all, when they went to the moor. This skep is 18 in. by 14 in., with an eke five inches deep added; and had August been an ordinary fine month, this hive should have gone a good way above 100 lbs. There were only six hives in this village (besides my own) in April, and only two of these have swarmed, and the others will not weigh more than 30 lbs. at the end of the month. Starvation and want of sufficient bees is the cause of this.

The people here about thought I was daft enough when I brought the 18-in. skeps to the place; but now, since they have seen 'Spurgeon's Tabernacle,' as they call the bar-frame hive, they consider me ready for the asylum at any time. They would not give one of their 12 in. by 9 in. straw skeps for the best hive in the world.—JOHN WOOD, *Killin, Perthshire.*

THE SEASON IN RENFREWSHIRE AND SOME OF ITS PECULIARITIES.

The spring and early summer months were very unpropitious, causing, after such a disastrous season as that of 1877, the most wide-spread mortality: in many an old-established apiary not a hum to be heard. Complaints were rife from the more careful bee-keepers who had stocks left of their swarms flying off to people the dead skeps, and enrich their negligent neighbours.

My own stocks, having received their quantum in autumn, lived on satisfactorily: non-swarming strong colonies, as a rule, do not require, and consequently rarely receive, much stimulative feeding in spring; but this season was so exceptional that for want of it breeding was much retarded in many cases, and entirely suspended in others, resulting, when midsummer day arrived, bringing with it genial warmth, and the longed-for honey-flow, in most stocks a short population to people the usual number of supers; and the honey was rapidly dashed into the vacant brood-cells of the breeding department, still further retarding the rapid increase of numbers, resulting in the heaviest body colonies I have had for many years, and proportionately less super honey. My best colony yielded but four thoroughly completed 20lb. octagon supers, besides odd driblets in other boxes.

A parish clergyman—a most painstaking apiarian, and a disciple of mine—so carefully catered for the wants of his little people in spring that he had his population up to the maximum, and reaped, as he deserved, his due reward in autumn, his eight octagon colonies yielding, independently of run honey, 445 lbs. of the purest super-comb, entirely free from pollen, brood, or slightest impurity. To make up that sum total his best colony contributed 92½ lbs., and next best, 88 lbs. When sending me his report, on 7th August, he gave his evidence in favour of the Italian cross as follows:—'The first-crosses are undoubtedly the bees to breed. I see, now that the season is dull, the black bees are doing nothing, but that wherever there is Ligurian blood at all, the hive is active and adding to its store.'

The eagerness with which the brood-cells were appropriated for storing the abounding nectar, I had a good opportunity of inspecting in my Observatory, at the head of which was a most prolific young queen, imported from Switzerland last summer. The central brood bed of each large division became day by day more circumscribed, till, with the maturing of every little batch of brood, no sooner were the vacated cells cleaned out than there appeared a brisk competition as to who should obtain possession. The active honey-gatherers seemed to have the best of it, as the poor queen strode over the combs idly dropping her eggs, till at last her acquisitive offspring lost all respect for their royal parent, seeming to look upon her as an incumbrance. I witnessed her being trodden over, and roughly handled, one afternoon: the following morning she was nowhere to be seen. Royal cells were speedily built, and before the first princess had emerged the honey season might be said to have closed.

An eminent apiarian, in the south of Scotland, I had the pleasure of visiting at the end of July; he showed me another most interesting case of the ingenuity and determination of our little favourites to 'improve the shining hour.' In one of his bee-houses a central living Woodbury was flanked on either side by a couple of defunct similar stocks, a little way apart, and with, of course, separate and distinct entrances for each. This central stock actually told off detachments, and took possession of both as colonial dependencies under the one queen and government, liberally storing both, together with completing a very beautiful glass of honey on one of the dependencies.—A RENFREWSHIRE BEE-KEEPER.

BEE-KEEPING IN WATERFORD.

Waterford is, we believe, the largest honey-producing district in the kingdom. In 1876 we got in from the country forty-five tons, last year about half the quantity, this year we expect about forty tons of very good quality; all this is produced in the old-fashioned straw hives or skeps, and the bees all smothered. Our farmers have no idea of any other plan. We have often thought whether it would be possible to introduce among them any better mode of honey culture. Your ideas on this would oblige. We have been subscribers to the *Bee Journal* for a good while.—GEORGE WHITE AND SONS.

[We can offer no better suggestions than have appeared in the *Bee Journal* from time to time, aided by an exhibition of manipulation in autumn, to show to the people how to save what they are now wasting, and to teach the mystery of artificial swarming. We quite understand the difficulty of weaning cottars from old customs. Talking is comparatively useless. Show them and they will see.—ED.]

THE HONEY FAIR AT WREXHAM.

Can anyone oblige me with a few particulars about the Honey Fair at Wrexham? Is it a fact or a myth? I have read about it somewhere, but it was long ago. I recently met a gentleman who had resided in the town, and questioned him about it, but he could tell me nothing. If it is still held, I should like to know whether bee-culture is extensively carried on in the district, and by what class—farmers or labourers. When and where the fair is held, whether the honey is sold in the comb or run, about how much is usually offered for sale, and the average price?—TAUNTONIAN.

INTERESTING HISTORY OF A PRIZE-WINNING STOCK.

Mr. W. H. Dunman, jun., of Troytown Farm, near Dorchester, who was one of the most successful exhibitors at the Dorchester shows held in connexion with the Dorsetshire Bee-Keepers' Association in 1877, and again this year, gives the following most interesting history of the stock of English bees which gave him the super of 80 lbs. net in August last:—

'After having seen what good results Messrs. Stickland and Antel had with their bees, I determined to keep some, so I bought a Cottager's Woodbury Hive of Messrs. Abbott, price 7*s.* 6*d.*, and I had a swarm given me from a straw skep. This was in 1876; the latter part of that year I put on a small super, and they filled it with 7 lbs. of honey. They were then very quiet until the next spring, when, on the 28th of May, they threw off a fine swarm, which swarmed again afterwards. I put on a super the first week in July, and they took to it and filled me 28 lbs. of honey, with which I took equal first at Dorchester last year for the best super and a silver medal offered to members of the British Bee-Keepers' Association as well as a bronze medal offered to members of Dorset Bee-Keepers' Association at Sherborne. I then covered them up for the winter, and kept them dry and warm. On the 20th of May this year, I put on my first super, and it was taken to on the 31st. I had zinc under, and when I looked in a day or two after I found the zinc covered with dead bees; I then lifted the super, took off the zinc, and put the super on the bars, the bees soon went to work in earnest, and by the second week in July I had three supers on. I then found, on examination, that the bottom super had brood in it; so one morning I had the help of Mr. Stickland, and we took off the bottom super and found it quite full of drone brood. We cut it all out, and put the same super on top, instead of in its old place; and then put on the zinc again. The bees then worked through the zinc as if it had not been there. I put on another super before July was out, there was one peculiar thing about the filling of the supers. I put them all on the top, and as soon as I added a fresh one they emptied the bottom super and carried it up into the top one. I took off the first super on the 7th of August, weighing 22 lbs. and other three on the 17th or 18th. They weighed 22 lbs., 23 lbs., and 24 lbs.; in all, 91 lbs., deducting 11 lbs. for supers, it weighed 80 lbs. net. I used Lee's supers at 5*s.* 6*d.* per pair. I received first prize at Dorchester for the heaviest harvest from one hive as member of the Dorset Bee-Keepers' Association, and first prize in the open class. After I had taken off supers I put on an empty one, and they began filling that with honey, thus showing me that there was no room in the hive. This stock has never been fed either winter or summer. I began with one stock in 1876; in 1877 I had four; now I have twelve, and I intend to keep twenty-five.

'I took 195 lbs. of honey from six hives this year.'

This little history is most encouraging to all advanced apiarians, but especially to the members of the Dorsetshire Bee-Keepers' Association, for it is a direct result of their labours. We believe we are correct in saying that it was first the bee show held at Sherborne that gave Mr. Dunman the idea of becoming a bee-master, and that caused him to adopt the modern improvements instead of following the methods common to the neighbourhood in which he resides. His great and rapid success shows that he is an apt pupil, and we hope to hear of him at the annual show of the British Bee-Keepers' Association and elsewhere next year.

DO BEES MAKE HONEY?

THE DOGMATIC APIARIAN.

I take it that the gentleman who (in *B. B. J.* of July, 1877) talked of sawing the inventor of bottomless supers into supers, and making his bones into bee-bread, and who signed himself 'E. S. F., *Epsom*,' is the same 'party' who, in this month's *Journal* signs himself 'F. S. E., *Epsom*.'

We perhaps may take his remarks *cum grano salis* (Epsom salt, of course) when he says that 'it struck him at once that bees certainly do make honey in the same degree as men make soap!' for a more unsavoury simile (and therefore one requiring some salt) and one more incorrect, could not be found.

Every one of us must lament that a brother apiarian could answer a lady in any other tones than sweet and honeyed ones; or that he should receive the suggestions of a gentleman 'with some impatience not unmixed with scorn.' But the truth must be told. Had 'F. S. E.' or 'E. S. F.' taken the trouble to consult any standard work on bees, or to read the July number of this year's *Journal*, p. 51, he would have found that his anonymous opponent was not far wrong in his dogmatics, and would have been spared the trouble of mixing his

caustic alkali with his oil of quills to make his September soap. I feel sure that four grains of *Pilulæ Langstrothii* with half the quantity of *communis hominum sensus*, would set him all right; if not, I would (being a medico) prescribe a larger dose of that salt found in solution so largely in his own locality.—MOUCHE À MIEL, *Combination Cottage, Mount Hybla.*

BLIND TEACHERS.

In a noted weekly paper there has appeared a short time since a series of articles on bee-furniture and management. The justly celebrated author of these articles has actually seen one of your earlier inventions in bee-hives, and of course, being a great genius, he at once improved upon it greatly! His vast and expansive mind at once saw the errors that clouded your brain through being so near to the London fog, and he—after mature consideration—planned and made a hive, which, if not perfection, was far ahead of any that had gone before. I will give you the dimensions of the frames so that you may revise (if you please) your Standard. Each frame was 24 inches long by 16 inches deep, and I believe the number used was fourteen. I am informed that this wondrous hive was only used one season and was afterwards shown to admiring friends in a loft. Need I say more than this: the reaction caused by the strain in this gigantic intellect induced the noble author to discard wooden frame hives, and to adopt the straw skep *à la* Pettigrew. (Matt. xv. 14.)—JAMES CROSSLEY JONES.

LARGE v. SMALL SUPERS.

I should like to drive another nail into the coffin of big supers; for I have been bothered terribly by them during the past season. Last year I worked the neat and convenient little sectionals, which were easily handled, readily packed, and were just proper to give a friend. This year I had a set of the Crystal Palace size, and I have wished them at Jericho half-a-dozen times. The combs were not fit for slinging, and yet they were too large and unshapely for honey-jars and plates: so they had to be cut, and were thus set bleeding before they were used. The shape and size of the bars prevented the possibility of making a safe and decent package for sending off by rail, as the bottom and ends have to be protected as well as the sides. Moreover, their length makes the slightest jerk a source of great danger. How different with the handy sectionals! In them each comb is firmly joined to sides and bottom bar, and the jerking resulting from carriage by road or rail can scarcely cause them to be loosened in the slightest degree. Put a bit of cardboard or very thin deal at each side, wrap a piece of paper round, and away they go, safe and sound. At the shows and honey fairs scores of persons would buy a small parcel of comb, which could be packed in a minute and carried home without trouble, while they would hesitate to take the risk of a larger, more unwieldy, and more dangerous mass. It seems to me, then, that all the advantages are on the side of the sectionals, and all the disadvantages with the big supers.—SOMERSET.

HONEY HARVEST AT TADCASTER, YORK.

I hope you will not think I am intruding on your time if I give you the results of the honey harvest in this district. I, and I believe most bee-keepers, up to about the 20th of June were in thorough despair; the spring had been so cold and wet that hives were in a wretched state, very weak, and no honey collected: but all at once hot weather set in, and my Nutt's hive, notwithstanding I gave them the two side boxes, swarmed, followed rapidly by many others. When the hive was weak I returned the swarm! but when strong I kept it, being anxious to increase my stock. I have now twenty-four hives with an ample supply of honey in each to carry them through the winter (barring accidents). I have got a splendid box off a Stewarton hive, and three straw caps full. In thirty-two years I never knew honey collected so late as this year, with one exception (and that was in 1847 or 1848) when the whole of it was collected in August, I conclude from honey-dew, as we have no heather in this district. The bees on the moors at present are in a woeful state, nothing but empty comb. The earliest I have ever known honey stored was the 23rd of April; the earliest I ever knew the honey season to end was the 15th June. Considering the cold and wet spring I should say that bees have never done better than this year.—J. CHALONER, *York.*

PACKING HONEY.

It is a great pity that people who want to send honey by rail do not follow the Scotch mode of packing, namely, turning the supers upside down and placing a wedge of paper between the combs to keep them firm. I had three large supers sent me a few days ago, and was particularly anxious that they should arrive in good condition, as I knew it would make a considerable difference in their value, so I gave a hint or two to the sender. Imagine my mortification when I found that they had been so badly packed that only one comb remained attached to the bars, all the others being down in heaps, and the honey running away through the bottom of the box. Consequently, I had to run it and strain it, selling as best I could (having no end of trouble and mess into the bargain), instead of being able to bide my time and take advantage of a good market.—LLONGBORTH.

DO BEE AND HONEY SHOWS PAY?

Certainly, if properly managed, and pay well, too. Each show of the Dorsetshire Bee-keepers' Association, for instance, has been a great success in every sense. The tents have been crowded, the exhibits have been numerous and excellent, the balances have been on the right side, and the educational value of the shows has been beyond dispute. Those who intend to get up exhibitions for next season will do well to consult, without delay, gentlemen who have managed those held during the past year. They can then arrange all the details during the long winter evenings, and will have ample time to complete their arrangements.

A HONEY-CART.

A friend who has been spending a few weeks at Eastbourne tells me he saw a man there selling 'Fine Sussex honey' in the streets. He took it about in a pretty little cart, the upper part of which formed a counter, upon which his scales, &c. were placed. This was covered and surrounded by curtains, as a protection against bees, wasps, &c. It was a very attractive turn-out, and the inhabitants of the neighbourhood had honey brought to their doors, just as they had other commodities. Some of your correspondents living in Sussex may be able to furnish your readers with more particulars—such as the quantity sold each season, price per pound, &c. These hints may set other carts going, and help to create a market for honey in various localities.—C. T.

THE RECENT HONEY-HARVEST AND THE PRICE OF HONEY.

Correspondents will oblige by quoting the price paid in their neighbourhood for super and run-honey. From Dorsetshire we hear as follows:—'A very fair harvest generally. Excellent results where the bees have been properly managed, as the Troytown and Puddletown supers at the Dorchester shows amply testify. Prime super honey in comb, selling at 1*s.* to 1*s.* 6*d.* per pound: the latter price being given when it is brought to market in fine condition, and in small quantities. Run honey 10*d.* to 1*s.* 3*d.* per pound.'

A Somerset correspondent writes:—'Few bee-keepers in this country can boast of great things during the past season. But the fault is not with the bees nor with the pasturage. The fact is we have still to cry with Goethe, "Light,—more light!" It too often happens that when stocks are large supers are small: and that where the pasturage is good bees are scarcer. Awfully mismanaged. We want more of your excellent *Journals* circulated, lectures delivered, and Bee Shows held; then we might hope for better things. Those who belong to the advanced school of apiculture must "learn to labour and to wait." Ay, there's the rub! The labour is pleasant, but the waiting is tedious.'

THE BAR-FRAME FEEDER.*

This is the outcome of the idea that all other feeders are unsatisfactory for bar-frame hives, and not in keeping with the advancement made in hives and other appliances. It is made of zinc (I should, however, prefer vulcanite) and is in the form of an ordinary frame made as a reservoir for the liquid syrup. A hole at one end, on the principle of a bird fountain, communicating with a trough which extends the whole length of the side, and is the bees' drinking-place. This hole or sluice at the end is shut by a connecting-rod from the top, and keeps the syrup from running out when it is being filled. It is filled from the top, where it is made air-tight by a screw. I tested its merits last spring, and its advantages over other feeders may be summed up thus:—(1) Having its feeding-trough at the bottom of hive, it stimulates the bees to greater activity than the bottle-feeder; (2) The large quantity of syrup which can be given at one time—a quart or more—which is of considerable advantage to one who cannot see his bees oftener than once a-week; (3) It cannot be spilled, does not prevent the complete covering of the hive with woollen cloths or other coverings; nor does it require to have a hole cut in the quilt, as is necessary with the bottle. Take out a frame and in its place insert the feeder, and no more is necessary than to fill it when empty. A strip of glass shows when it needs refilling. It thus acts both as a feeder and a dummy. We are always apt to think too much of our own 'bairns,' but I cannot doubt but other apiarians will find it to give satisfaction as it has given to me its inventor.—Angus Cameron, *Blair Athole, Perthshire, Sept. 19th.*

* Owing to the Bank Holiday it was not in time to be examined by the judges.—A. C.

THE GRIFFIN HIVE.

This hive is the invention of Wm. N. Griffin, of Rock House, Alphington, Exeter, hon. sec. of the Devon and Exeter Bee-keepers' Association. It has been awarded many prizes, and has received various marks of approbation both in London and elsewhere. The hive in itself combines most of the modern improvements in bar-frame hives, together with some special advantages claimed by the inventor. It is of wood, having double walls all round, with dead air-space between, and is made in two sizes—one contains ten rectangular frames, which are flush with the sides of the hive, including a dummy, while the smaller size has only nine frames. The hive is complete with stand, cover roof, sliding floor-board, and moveable porch, and the entrance by a simple arrangement can be enlarged, contracted, or closed entirely. One of its most prominent features is the revolving rack, which, while possessing all the advantages of the fixed rack, does away with the acknowledged evils of the old notched rabbets. When manipulating the frames, they can be quickly and somewhat carelessly returned to the hive, when by a half turn of the handles of the rack they are all immediately adjusted in their exact position and correct distances from each other, and by raising the handles all the frames are at once set at liberty. The sides of the teeth of the rack are mitred, so that there is no possibility of a single bee being crushed, nor of the frames being cemented to the rack with propolis. The racks work behind runners or ledges, on which the frames rest; are moved by a handle at each end, which work in boxes in part of the dead-air space, and which, when not in use, are covered by shutters. The legs of the hive run up inside its corners, thus affording the greatest stability for the hive walls. The runners for the shifting floor-board being fixed immediately under the inner walls, are sloped upwards towards the back of the hive, so that by this arrangement only one wedge is required for pushing up and retaining the floor-board in place. This latter is, of course, damped at the sides to prevent warping. The entrance may be contracted to almost any extent, or, if necessary,

closed altogether, by means of slides of zinc, having apertures of various sizes working behind the moulding. The alighting-board is sheltered by a porch with close sides, which is moveable, effectually protecting the bees from wind or rain. In the back of the hive is a window, having double glass and protected by a shutter. There is no crown-board, as the hive is intended to be worked with a quilt. The roof is ornamental, and well ventilated by four holes at each end, and protected on the inside by perforated zinc. Sufficient space is allowed beneath the roof for any kind of super which may be preferred; but it is intended to work a set of sectionals. The interior dimensions of the brood chamber are 16¼ in. from front to rear, 13¾ in. from side to side, and 9½ in. deep, giving a capacity of of 2045 cubic inches. The outside measure of the brood chamber is 21⅛ in. in length by 18 in. in width. The height of the hive is 3 ft. 3½ in. The frames: the top-bar outside measure is 17½ in. long, the bottom bar 15½ in., the ends 9⅛ in. in depth; all ⅞ in. wide. The distance from each other is 9-16 in., from centre to centre of frame 1 7-16 in. The hive, as at present manufactured, complete with quilt, with wooden or perforated zinc adaptor, thoroughly well made of seasoned wood and painted, containing nine frames and dummy, *2l. 7s.*; without dummy (smaller size), *2l. 4s. 6d.* Can be obtained of the inventor.

PARIS EXHIBITION.

The Editor's Reviewer Reviewed by another English Bar-Framist in France.

You know me well enough to be aware that I am no lukewarm supporter of bar-frames, and a scientific (*i.e.*, sensible) system of keeping bees, yet I venture to think that an English bar-framist's appreciation of M. Hamet is by no means so fair a one as yours. If he really reads the *Apiculteur* he must have seen M. Hamet's notice of your hives in the July number, in which he fully conceded that your hives beat anything France could show.

You must bear in mind that the French have always been brought in contact with the awkward German system of bar-frames, in which the frames have to be withdrawn one by one from the side of the hive, and they do not know our system.

There are, however, many advanced bee-keepers in the east of France and in Alsace, who have long discarded skeps for the German bar-frame hives. I have given both the hives you kindly brought to Paris for me to two of these, to whom they have given the greatest pleasure. I did this sooner than use them myself, though I much wanted them, and I hope to aid in the introduction of a better system more effectually by so doing, than by any amount of vaunting self-superiority, which always puts up the back of those you want to convert.

Stings.—It is a mistake to suppose that the biggest fools have best luck, they more than often get most stings.

When you meet a bee, be polite, and don't give him reason to turn round upon you; it's just when he's springing to be off that he leaves you a reason for remembering him unpleasantly.

Echoes from the Hives.

Hitchin, Aug. 5.—'I was surprised to read in the *Bee Journal*, that you consider this to have been a good honey year, for I think super honey was never so scarce in this neighbourhood. Heretofore, May swarms have generally given supers after filling the stock hive, but this year I have hardly met with a single instance. What super honey there is has been gathered by stocks which have not swarmed. Two casts, which came off June 7th and 16th, fed with some syrup to give them a start, weigh quite as heavy as the swarms which preceded them; so there is honey in the hives, but it is rather disappointing to get none in the supers: it is so much more inviting in the pure white comb than when it has passed through the extractor.'

Hunton Farm, Micheldever, Aug. 27th.—Novel Super.—'I must tell you, some time ago we put a dish-cover over one of our home-made hives, with no zinc or anything between it or the bars, and last week we took it off weighing 12 lbs., the cover 1 lb. 7 ozs. The honey was first-rate, perfectly free from pollen or brood.'—H. M.

Plean by Stirling, N. B.—Hybrids, *v.* Pure Bees.—'One of my swarms, the progeny of a hybrid queen, which I had from my brother, John Gillespie, East Plean by Stirling, which he got from you four years ago, has yielded me 92 lbs. 11 ozs. of virgin honey, and I have a super which contains about 12 or 18 lbs. of virgin honey, total about 104 or 106 lbs. of the best virgin honey. After getting this from them, the hive will weigh somewhere about 70 lbs. nett. I have got this without taking the stock to the moors. This is my best swarm; the rest that I have, have done also very well.'—William Gillespie.

Godalming.—'I think the quilted hive has done the best of all. It has a super with some stock in it—I think the only super that has anything in. I will get some quilts ready, and shall put them on all the hives this coming winter.'—J. W. P.

Derby.—'Your "Combination" called to mind two circumstances that came under my notice this season. On removing a nadir I had placed as a makeshift (*i. e.*, a box without frames or guides) under a bar-frame hive, I found the combs running from side to side; also I noticed the same in a skep (a last year's swarm), which I transferred a few weeks since: and before seeing the account of your new hive in this month's *B. B. J.*, I had entertained the thought of experimenting in the same direction myself next year.'—H. M. S.

Norwich.—'The more I read of the *B. B. J.* the more I like it. I have kept bees for years on the old plan, and my experience of them is, that they make plenty of comb but not much honey, and you cannot look at them. I see you recommend pea-flour, as artificial pollen. Is it not possible to make artificial honey? If you could only make dark honey light, I should at once say you should have a grant from Parliament, as others have done when the country at large is benefited.'—J. T., *August 29th*, 1878.

'I have often seen manipulators put queens in their mouth with impunity. I, when driving for some cottagers the other day did the same, and she stung me on the lip, much to my surprise; she did not bite but sting, and one of the lookers-on saw her sting me and withdrew the sting.'—F. L.

[Is it not probable that the pressure of the queen between the lips forced the sting into one of them? We have held the queen between the lips many times, and have been bitten often, and have tasted the queen's sting-poison, but have never felt the sting.—Ed.]

Queries and Replies.

QUERY No. 276.—SWARMS IN OLD COMBS. If a swarm is hived in combs preserved from previous years, will the bees make use of pollen that has been stored in them?—STAFFORD.

REPLY TO QUERY No. 276.—If the pollen in the old comb has been 'preserved' by being covered with honey and sealed over, as is usual with that which is intended for future use, the bees of a swarm introduced to them in a succeeding year will use it as if themselves had collected it, but if it is allowed to become dry, they will tear open the cells and cast it from the hives. In the spring the casting forth of pollen pellets may often be observed: the bees cluster in winter and leave it exposed; it becomes dry and mouldy, and when they want to occupy the cells again they clear it out, and it may be found on the alighting-board or on the ground in front of the hive. Such scavengering is a healthy sign.—ED.]

QUERY No. 277.—DRONES EVAPORATING.—I am happy to state that both the queens you sent me have been favourably received. I was most anxious about the one that had been queenless some time, expecting a slaughter of drones, and looking for their corpses outside the hive, but seeing nothing of the kind, it was quite with fear and trembling that I opened the hive (ten days after her majesty's release), what was my surprise and joy to find plenty of sealed and unsealed brood, but not a vestige of a drone! Query, what had become of them? Did they swarm out in search of a more genial home, foreseeing their doom if they remained?

REPLY TO QUERY No. 277.—Undoubtedly the drones felt that the presence of a queen was 'a caution' to them, and took themselves off to another queenless stock. We wonder, if drones had stings, if they would use them when a fertile queen was thrust upon the hive? This offers a clue to a host of reasons why drones have not stings.—ED.

QUERY No. 278.—SALICYLIC ACID. I shall be obliged if you can give me in the next *Journal*, the proper proportions of salicylic acid and spirits of wine, to cure foul brood, as I have a case under my notice. I cannot make the receipt in *Journal* answer.—W. J.

REPLY TO QUERY No. 278.—Dissolve the acid in eight times its weight of spirit of wine, then add to the solution fifteen times its weight of water, heat the whole and apply with spray-producer.

NOTICES TO CORRESPONDENTS & INQUIRERS.

JOHN WOOD, *Perthshire.—Transferring.*—It is not easy to determine how many bees would be required at this season to fill a Standard hive, as so much depends on the weather, the age of the bees, and how far they have travelled by rail. Forcing bees to build combs at this late period is most exhaustive to them, and under ordinary circumstances hundreds would die daily; but supposing the weather to be cold and boisterous, the loss of life would be greatly increased. Putting bees into empty hives, and feeding them now will not pay; give them the brood and pollen combs (from the hives from which they are driven) fixed into frames, and placed alternately in the new hives, and five or six pounds of bees will establish the stock if gently fed. If the alternate frames were furnished with comb foundations, it would greatly assist the bees and save their time and labour.—*Feeding* on the top may be made as rapid as you wish, by giving more holes for the bees to suck the syrup through. Your hive will doubtless answer the purpose well, if attention has been paid to the measurements of the frames as regards the hive in which they are placed, and their distance from each other. The floor-board being grooved into the sides, may give trouble, as the bees may fix it with propolis, or it may swell and fix itself.

JOHN VENABLES, *Salop.*—The 'foundations' of queen-cells may be old ones; you do not say if they contain eggs or larvæ, but a few days will prove if the queen is present or not, for if absent, the cells will be completed. It was quite wise to extract the honey to give room in the hive, but the queen's safety should have been the first consideration while doing so. Having never seen a queen, and not being able to recognise one, look for evidences of her presence in the form of eggs and larvæ in the cells: with plenty of honey coming in there should be a fair quantity of both.

A. GREGORY.—*Uniting.*—Shake or drive all the bees out of both hives, sprinkle them with scented syrup, and mix them together in one hive. Sprinkle also the comb they are to be put into, and when well mingled let them run into them.

Weight of combs, &c.—Having neglected to weigh the hive, procure another like it, or get the maker to tell you the weight of a similar one, you can then judge fairly the weight of the contents of your own.

The leaflet on Feeding will be sent post-free for one penny stamp.

ENGLISH BAR-FRAME HIVES, Woodbury size, 7*s.* 6*d.* each.

ITALIAN BAR-FRAME HIVES, eight bars, 3*s.* each.

'Commended for simplicity and cheapness.'—
Alexandra Palace, 1877.

Extra bars, well waxed, one-inch wood, 3*d.* each.

Directions for Management, 3*d.* each.

Post-office Orders payable at Horncastle.

ISAAC HALE, Maker, Lincoln Road, Horncastle. fo. 27.

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Sixteenth Edition. Price One Shilling.

SEVENTY POUNDS A-YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. PAGDEN.

Also, by the same Author, price Sixpence.

EARLY ARTIFICIAL BEE-SWARMING.

No watching required.

Apply to Mrs. J. W. PAGDEN, the Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 80.

DR. PINE'S

BEE-KEEPERS' LOTION.

This Lotion will be found to almost instantly remove the pain of a sting and prevent subsequent inflammation. It is also a remedy for scalds, burns, and the stings and bites of other insects besides Bees.

TESTIMONIAL.—'Your Bee Lotion has certainly a wonderful effect in allaying the pain and swelling resulting from Bee-stings. I have applied it to many persons during the past season with the greatest success.'—OBED POOLE, Hon. Sec. West of England Apiarian Society, Uphill, Weston-super-Mare. Feb. 13th, 1877.

Price 1s. 6d. per bottle, or Post-free for 1s. 8d.

AGENT—

MR. C. N. ABBOTT, Editor of *B. B. Journal*, Fairlawn, Southall.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 67. Vol. VI.] NOVEMBER, 1878. [Published Monthly.]

Editorial, Notices, &c.

NOVEMBER.

The dreary month has at length put in an appearance, and with it what is called the 'dull time' for apiarians has commenced. All the shows for the year are over, including the greatest of all, the Paris International Exhibition, where all the world competed, and Britain gained so many honours. Apiaries should now be at rest, all the work of preparation for wintering having been accomplished, and the bees rendered snug and comfortable, secure alike from outside cold and wet, yet sufficiently ventilated to ensure perfect dryness within. During November, December, and January, it would be well if the bees could rest totally undisturbed, so that they might simply *exist* without losing any of their vital energy and power, as they do in many countries where the weather is consistent, and a continuation of cold keeps them at home for many weeks together, simply, as it were, resting and recruiting, rather than wasting their vitality. In this country, where the weather cannot be relied on for an hour, the bees are continually tempted forth by bright gleams of winter sunshine, or rendered active by a temperature that cheats even the trees and plants, and forces them into abnormal growth, to their own undoing. It is therefore necessary that bees in Great Britain should have constant attention during winter, not so much with a view to interfering with and disturbing them needlessly, as to prevent the many evils with which they might be assailed through the unwholesome activity induced by the mildness of the weather, or the treacherous gleams of sunshine that tempt them forth to perish in the snow, or be blown away by the freezing blast. This with *us* is a comparatively 'old story,' but nevertheless it is worth repeating, since it may not have been hitherto heard by every one, and is valuable withal.

The so-called 'dull time,' however, promises this year to be one of considerable activity in an apicultural sense; for, consequent on the announcement that a lecture could be loaned to those willing to deliver it, a great demand has arisen which the compiler is not in a position to fulfil, and there is a prospect that in many country districts, school-room and drill-hall may be often occupied as arenas in which instruction in bee-keeping may be imparted in the most pleasant manner, and that, too, with the minimum of expense and labour. The compiler is a gentleman of considerable attainments connected with the Press, yet unwilling to bear the honours he deserves; he incurred the cost of printing his compilation, but only five copies were struck off, a number utterly insufficient to supply the demand, as will be seen when it is understood that many present applicants intend to use the lecture after Christmas, and wish to scan it the meantime. We naturally regret that the compiler refuses to bear the 'blush of fame' which his endeavour to 'do good by stealth' will raise, but we cannot help the fact; and, therefore, seeing his inability to fulfil the demand his large-heartedness has caused, and believing his lecture, 'his endeavour,' as he says, 'to weave together threads from many a shuttle,' to be a most valuable contribution to bee literature, we have purchased the copyright, and intend to publish it in a special form, for lecturers only. It will be manifest that if such a work were published and sent broadcast throughout the land, very little interest would be felt in its delivery on any special occasion; and, therefore, that it may remain comparatively unique, it has been suggested that only 100 copies shall be printed, and that the type shall be immediately 'broken up' and 'distributed.' It is not intended to 'bind' the lecture in volume form, but to send it out as a 'tract,' serial, or 'number,' which the intending lecturer can interleave with papers containing his own notes and observations, and sew into any wrapper he may select, so that to an audience it may appear more in the character of a lecture than

a paper to be read. It is of no party, and therefore may be taken up by any so-called 'school of bee-keepers,' special methods of management being left for the lecturer to supply. It treats only of 'the honey bee,' is written by 'a lover of bees,' and is eminently calculated to advance the interest in bee-culture, which has of late years been so energetically fostered. Its price will be 2*s.* 2*d.* post free from this office.

WORK FOR THE MONTH.

The bees having been safely stowed for the winter, will need little care beyond that necessary to prevent the hive-entrance becoming choked with dead bees, broken chips of comb, or by enemies that may have gained admittance and filled the gateway. A piece of wire bent like the letter L will be found a convenient means of clearing the floor-boards of dead and *débris*, and should often be used, as their removal will tend greatly to the comfort and health of the colonies, and will save the bees considerable irritation and labour. Bee enemies should be specially provided against, mice being amongst the most formidable at this time of the year. Tomtits also do much mischief, and should be made examples of. Hives should be kept free from cobwebs and spiders and all other vermin. Now is the time of preparation for next year's campaign. It is comparatively useless to advise bee-keepers to prepare new hives or to order them during the 'dull time,' as few will take the advice, apparently preferring to wait until they have pressing need, and then 'everybody's alike' and things get into a muddle. Of ten virgins, five were wise and five were foolish; but of bee-keepers, if 'readiness' were the criterion, the foolish would average ten to one at the very least.

Bee packing for winter being over, every bit of old and waste comb should be collected and boiled down, that it may not become a harbour for the grubs of the wax-moth. It is an astonishing fact that, though in many places the moth is a perfect pest, yet hives filled with old comb are left standing in gardens as if to form special breeding-places for them. Not only should old combs be boiled down, but the old skeps containing them should be burned that all vermin may be destroyed.

The insides of bee-houses should be carefully scrutinised with a view to the destruction of the eggs and chrysalides of moths, spiders, &c., half-an-hour's labour may prevent the evolution of myriads of the pests, and save much trouble hereafter. When any feeding is necessary, and there *will* be some who have neglected the necessary duty, barley sugar only should be used if a large quantity is required.

Now is a good time to make plantations of such things as may be desired to help the bees. The palm-bearing willow is one of the earliest pollen-yielding trees, and a dozen or two of them grown in a marshy corner, or near a pond or ditch, will be found very useful. Almond trees also yield large quantities of honey and pollen, and on fine days are literally besieged by the bees. Raspberries, currants, and gooseberries, are early, and should now be planted if space will permit. Crocuses are great favourites with bees. Arabis is also much frequented by them, and wall-flowers are much sought after. Melilot clover is a help to bees, but it is late; nevertheless it may be now transplanted. Laurustinus is a good winter flowering shrub, and will bear transplanting at the end of the season.

DYSENTERY.

Dysentery is a disease which attacks bees that have partaken of unwholesome food when confined to their domicile for a protracted period; it is chiefly a winter disease, and its symptoms are dirty discharges of filth on the alighting board or about the hive; but before that is observed considerable mischief may have arisen, and the whole hive may have become affected.

In the days when crown-boards were used and hives were comparatively unventilated, the disease was common, and scarcely an apiary escaped its visitation during winter, to be followed by a long train of evils which culminated in foul brood, and sometimes rendered the whole of the bees valueless.

There are several causes which may produce dysentery, and they should be particularly guarded against, for the disease is more easily prevented than cured. Want of ventilation is one of the leading causes, as it induces an impure atmosphere which affects the unsealed honey, causing it to sour and to ferment within the bodies of the bees, and, as is tolerably well known, bees having no power to evacuate their faeces except when on the wing, they, in their extremity, either rush out of the hive and die through cold; or if by the severity of the weather they are prevented from so doing, they positively burst within their hives and make their homes much more filthy than they were. A draught through the hive is equally detrimental, for in cold times it causes the bees to consume honey largely as a means of producing the heat necessary to life, and thus they become over-gorged at a time when a cleansing flight is impossible, and a result similar to that described above is nearly sure to be the consequence. Rapid syrup-feeding late in the autumn is a fruitful source of dysentery, for more water is imported into the cells than the

bees can evaporate, it therefore remains unsealed, and, like wine or beer when left uncorked, it rapidly sours, and, during a spell of cold weather, when the bees are confined to the hive, it works similar mischief to that portrayed.

Dampness within a hive is another terrible cause of the disease, but being itself a consequence of defective ventilation may be classed with it. We have known many cases where their hive has not been in fault, the bees snug and comfortable, with the quilt properly arranged and all healthy and prosperous, when the owner in a mistaken spirit of kindness covers up the hive with a waterproof something '*to keep it dry*, and keep out the wind,' and then the mischief commences. The 'something' may be a piece of tarpaulin, or indiarubber sheeting; a slab of slate or an impermeable crown board, but in either case if it confines the heat and prevents the escape of the vitiated atmosphere from within the hive, disease will be sure to attack it during cold weather.

In the summer when breeding is going on, and moist heat is a necessity, the bees ventilate their hive by fanning at the entrance, but in winter they cannot do so unless aided by artificial heat, which few think it worth while to afford them. When the moist vapours caused by the respiration of the bees cannot get out of a hive, they condense in its coldest parts usually the corners in the first instance, and render them wet through the absorption of the dew-drops formed in condensation; and the wet causing greater coldness and condensing power, increases the evil until the poor bees are driven to greater consumption of food for heat-producing purposes, and thus become afflicted in the way already shown.

Having pointed out some of the causes of the disease, let us see what are the best remedies.

Many writers direct those whose bees are unfortunately afflicted, to give them a supply of pure syrup, and doubtless that would be a good thing if the bees could take it, but in a cold time the thing, in an ordinary sense, is almost impossible. It must be borne in mind that the first evidences of the disease do not reveal the extent of the mischief within the hive. Before the bees begin to crawl out and drop on the ground, they will have suffered to a great extent within, unobserved, and often many hundreds of them will have died between the combs, blocking them up with their fœtid bodies and making the hive a mass of corruption destructive to the bees and poisonous to the brood (for dysenteric stocks almost always begin breeding), and a hive cannot well be in a worse condition. The first necessary in such a case is to clear out the dead, not only those on the floor-board, it is always a mistake to suppose they are all, but those amongst the combs also; not an easy task when the combs are fixed, (a fair argument in favour of mobilism,) and then place the hive in a position where it can be thoroughly dried out, and where the bees can take a flight, be it ever so short, and obtain relief. This may be effected in several ways, one of the simplest being to set the hive, if a skep, in the mouth of a canvas bag, and suspending it so that the bees may take their flight within the bag, yet be able to return to the hive without difficulty, an arrangement which, if carried out in a heated room, or greenhouse, will be of great service in restoring the surviving bees to a healthier condition. If a bar-frame hive, a glazed box should be fixed beneath it, and the whole carried into a hot room, when the bees can be warmed into life and restored, as before said. When these operations have taken place, fresh syrup may be offered them, with a reasonable prospect of their taking it; but we have found that barley sugar is much better for them, as it does not import *moisture* into the hive, but the labour of taking it causes heat, and tends rather to dispel it. There is a vast deal of 'trash' afloat as to the means to be used in the so-called 'cure' of dysentery, but we have many times expressed our conviction that its 'prevention' is more to be desired, and if our friends will take into their consideration the several *causes* which we have endeavoured to explain, and will act upon the counteracting suggestions offered, we trust that 'dysentery' will be remembered only as an ancient bugbear, sufficiently 'vicious' to demand the attention of scientific bee-masters wherever as an old enemy it may make its appearance, but through their research so well understood as to be but a test of apicultural knowledge.

JUDGING HONEY.

A CONVERSAZIONE.

On the evening before the Lincolnshire Association Show at Stamford on 13th August last, a meeting of judges, experts, and friends, took place at the George Hotel, Stamford, to consider any question which might bear upon, or influence, the next day's proceedings. The idea in the first instance was that at such a meeting anything not fully defined by 'rule and regulation,' might be brought on the 'tapis,' and made a subject of conversation, and that, as far as possible, any misunderstanding of, or dubiety in the interpretation of such rules, &c., might by comparison of ideas be made '*comfortable*,' and the possibility of inconsistency in the award of prizes rendered

chimerical. There were twelve gentlemen present, some of whom we had not the good fortune to know; but there were T. W. Cowan, Esq., in the chair, the Rev. J. Lawson Sisson, Messrs. W. Carr, R. R. Godfrey, J. G. Desborough, J. Holloway, W. Sells, C. N. Abbott, G. Brett, and R. Tewson, amongst the number. There had been no programme or agenda paper prepared, and it became necessary, therefore, for each to press his own views, and the first subject (by Mr. Abbott, editor) was in regard to '*the colour of honey.*' He (the editor) suggested that having reference to the object of Bee Associations in promoting shows, &c., he had no doubt but that it would be fully understood and recognised that the primary consideration was the encouragement of bee 'culture,' to induce an increased production of honey without the destruction of the bees, and thus to lead up to a better understanding and appreciation of the wonderful nature of their 'ordering.' If colour became a recognised 'factor' with the judges, many great honey-producing districts would be completely disfranchised, for, as was well known, different districts produce honey of different quality and colour, its nature being governed by the character of the surroundings. It was well known that open clover fields produced the brightest and most delicate honey, while a wooded country gave forth what could sometimes be scarcely distinguished from treacle, yet in both cases skilful management would be equally necessary, and ought to be equally encouraged. Hitherto, however, it had been the custom to award prizes for the best honey, but considering that the encouragement of cottage bee-keepers was an avowed object of the Associations, he thought that skill should be recognised, and thus give hope of prizes to those who by the nature of their avocations were unable to choose their place of residence yet, with fair encouragement, might become good bee-keepers. Having made these suggestions he begged to leave the matter with the meeting.

The Rev. J. Lawson Sisson, Messrs. Desborough, Holloway, Godfrey, and the chairman, having thereupon expressed similar views to those recorded, it was resolved that the judges of honey should be requested to make their awards, to those whose supers displayed the greatest skill in their production, and that the colour of the honey ought not to be taken into account.

Mr. Abbott then called attention to the fact that in Scotland the quality of the comb itself was a great consideration, and asked, as he had been appointed a judge in the honey classes, that the meeting would help him and his *confrères* to a decision on the question. In Scotland, worker comb in supers carried the day against drone comb, the latter being considered 'coarse,' and the production of the former deserving of encouragement because it was capable of use, in the stock hive. A long discussion ensued, in which the relative merits of both kinds of comb were fully entered upon, and it was resolved that the character of the cells in supers ought not to be taken into consideration when making the awards.

Run-honey then became a subject of discussion, and it was argued that *colour* should not be a consideration, that flavour should be of first importance, and when a question arose in that respect the brightest honey should have the preference.

A discussion then arose as to the propriety of continuing the practice of offering prizes for 'big supers,' which, as in the case of the Manchester swindle, often lead weak-minded men into temptation which they are unable to withstand. Following upon this the question of 'glass supers' versus those more portable and saleable, came up; and after much discussion it was resolved that offering prizes for huge supers was a mistake, that the use of bell-glasses should be discouraged, and that smaller ones only should be admissible for competition. The feeling against glass supers in almost any form was generally evident, they being considered expensive, fragile, unacceptable to bees, and inconvenient for table use when filled.

Mr. Abbott then called attention to a state of affairs that caused considerable dissatisfaction at various shows; he had no direct personal interest in the question, but thought the present would be a fitting occasion for ventilating the subject. He alluded to what are called 'foreigners at local shows,' where some one or more, having a big super or a lot of them, made it their business to go round the country to all the shows, and pocket prizes that, he submitted, were subscribed for locally, and were intended for the encouragement of local bee-keepers, in the same sense that the Central Association gleaned its support from the country at large, and its prizes were intended to benefit bee-keepers on the same broad basis. He knew it was a subject that required very careful consideration, and was not prepared with any proposal, but still thought some system of handicapping might be adopted which would prevent any one individual from frightening all the world through having achieved a set of monstrous supers, or a great quantity of honey in other forms. He was quite prepared to be met with a retort, that the same rule ought to apply to hives—a subject in which he was deeply implicated; but he submitted that the two questions were not in the same category. Exhibitions of honey, though stimulating to a certain extent, could not be considered instruc-

tive in the sense in which were exhibits of improved hives, supers, extractors, and bee furniture generally. In the latter case, whenever such wares were shown, it was no uncommon sight to see dozens of intending manufacturers busy with rule and pencil, measuring and sketching the various articles, and taking *the best of everything* for themselves, thus benefiting to a very large extent by what was brought, as it were, to their very doors. Honey exhibits he knew were sometimes 'works of art,' and in such cases he thought it scarcely likely that their exhibition or explanation would effect much improvement in any direction.

Mr. Godfrey thought such exhibits by cottagers, as showing what a cottager can do, were most encouraging. Shows would be poor without them, and bee-keepers would not bring them if prizes were not offered as an inducement.

Considerable argument ensued, and many suggestions were made, but the Act of Parliament governing hotels, &c., prevented further discussion, and a vote of thanks to the chairman brought to a close one of the most pleasant 'conversaziones' it has ever been our good fortune to have enjoyed.

It need scarcely be added that the opinions in regard to honey were strictly acted upon in making the awards, and that in every case the latter gave perfect satisfaction.

THE WAY OF REMOVING BEES SHORT DISTANCES.

We have been inquired of respecting bees that have been removed to snug winter quarters, where they were so thoroughly protected that their owner thought they would be quite safe until spring; but on looking at them a few days after the removal, he found they had dwindled to about half their former numbers, and were not at all active, as he had hoped to find them. The cause was the removal of them from one spot to another within their radius of flight. At this time of year bees do not fly far—perhaps not more than a quarter of a mile at the most, so that if taken half a mile from their home they would not be likely to return to their former locality. In the summer and early autumn their flight will be six times as far, at the least; and then three miles is not a bit too far to take them to be well out of reach of former hunting ground, and to ensure their safety in their new station.

In the present case they were simply removed a few yards, and packed away in supposed security; and the result was that on the first fine day they 'rushed' out, not knowing of the change, and having flown, returned to the 'old locality,' where, not finding their hives, they became lost, and a chilling half-hour destroyed all appearance of them, except among the trees and shrubs, where they would probably not be looked for. At this season, when bees go out, they often forage for nought, and a chill to such as return empty to their supposed home, which they cannot find, is a very different matter to bees returning laden with honey, having within them the means of life, and capable of being resuscitated by the sun's heat next day. This is a lesson many learn for themselves at great cost, though we have many times explained it. If bees are to be removed short distances they should be taken by very short stages if there be more than one hive, or they may after removal enter the wrong one. A single hive may be moved half-a-dozen yards at a stretch, but a branch of a tree should be planted to lean against the alighting-board, so that the departing bees may notice their removal and take observation of the new position.

NEW INVENTIONS AND IMPROVEMENTS.

Now that the shows are over for the season, and the bees made snug for the winter, we hope it will not be supposed that the inventive genius of bee-masters will retire into winter quarters also, to ruminate during the dull, cold weather which at this time of year is naturally expected. The shows are undoubtedly of the greatest use in stimulating bee culture, by bringing out the best ideas and inventions, and the awards of the judges are undoubtedly most useful in directing public attention to the best in every class; but to our mind it seems a pity that it is necessary to wait until the shows come round before the public can get the best ideas, and the inventor a chance of his brain-work being recognised and himself identified with it. Several minds may be engaged with similar thoughts and ideas; and, as in the case of Langstroth and Dzierzon, who simultaneously invented the bar-frame principle; Abbott and Danyell, who at the same time were busy about their extractors, both of which were alike in their principle of action, only one worked in a perpendicular plane and the other horizontally. Again, with sectional supers similar ideas imbued different minds: we were inventing what we believed to be an entirely original plan of divisional supers, and but for 'a loose fish,' who neglected the engravings necessary to illustrate it, we lost the credit of originality; for during the month of delay that consequently occurred the *American Bee Journal* sent over an account of the new invention having been already in use, and glowed with its description of its usefulness. The Raynor, Carr, and Renfrewshire queen cages present another instance of simultaneous brain action in different localities.

All these gentlemen were undoubtedly originators, but they produced practically the same thing each without the knowledge that any other mind was devoted to the same object. Instances could be multiplied bearing upon the question, but to quote them would be wandering from the purpose we have in view, which is to suggest that a committee of experts be formed, to meet at stated times to examine and report upon any and everything calculated to improve the science we all have at heart—to give certificates of merit where they deem them of sufficient importance, and to keep a record of inventors and inventions. Under its present able secretaryship, the British Bee-keepers' Association is moving in the right direction—in fact, is fulfilling the purpose for which it was first formed, though to our mind it would be more to its interest, and would better satisfy its friends, if it sounded its trumpet more often, to let the world know more of its doings. This is parenthetical, and in no spirit of opposition, seeing that everything we could wish in the interest of British bee-keeping is being gently brought about—'the Journeyings of the Tent' in witness thereof—and we most sincerely hope that as a most useful association it will be thoroughly supported by all who take an interest in bees and their culture. Seeing that the Committee intend to hold monthly meetings; that every member of that body is, or should be, a thoroughly practical bee-keeper, and as such competent to judge of the merits of any theories or inventions brought before them, we would submit that they should have power to grant certificates of merit for what they approved, and thus enable inventors to give their ideas to the world without fear of being robbed of them by imitators, manufacturers, dealers, or writers.

The form of certificate lately issued by the Association is of very pretty design, beautifully illuminated, and a desirable ornament to the breakfast-rooms of those who can win them, and not even the medals can be more highly esteemed, since they (the certificates) bear upon them the written record of the cause of their bestowal, and the names of the judges who made the awards, which the medals have not.

The Horticultural, and probably most other associations, have periodical meetings, at which new fruits, seeds, plants, and produce are submitted to committees, and certificates of merit at once awarded to the producers of such as are considered worthy of them, and we most earnestly hope that the Committee of the British Bee-keepers' Association will devise some method by which a similar mode of recognition and identification of inventors in bee-culture may be accomplished. In this present *Journal* there is a claim made by a correspondent to an invention that was previously published by another, and it is evident that such misunderstandings cannot conduce to harmony and good feeling; whereas had there been a committee to whom reference could have been made the originator might have established his claim to the invention though it became public property afterwards.

ENGLISH EXHIBITORS AT THE PARIS EXHIBITION.

'By order of His Royal Highness the President' of the Royal Commissioners for Great Britain and Ireland we have been furnished with a list of awards made to British exhibitors at the Paris Universal Exhibition of 1878. The list is voluminous, but in respect of bee culture only three awards were made, the first on the list being—

'Abbott, C. N., Fairlawn, Southall, Silver Medal for Bee-hives, and Observatory Bee-hive.

'Neighbour, G. & Sons, 127 High Holborn, London, Silver Medal for Bee-hives.

'Wilson, Brice, Newbury, Berks, Bronze Medal for Observatory Hive.'

The judges were, 'France—*M. Blanchard*, President Rue de l'Université, 34; *M. le Marquis de Gineslous*, Vice President, Rue de Madame, 54; *M. Balbiani*, Reporter Rue des Ecoles, 5; Supplementary, *M. Malliot*, Montpellier.'

Thus it appears that all the English exhibitors in Class 83 in respect of bee culture obtained awards — no small compliment, considering they were in competition with *all the world*. This fact, in conjunction with the stirring articles in the *American Bee Journal* recommending the adoption of Britain's method of taking the Mahomet of Advancement to the Mountain of Ignorance, places Britannia well to the fore. We do not 'ape humility' in confessing our 'pride' on having originated the 'Method' aforesaid.—Ed. *B.B.J.*

FOUL BROOD—DELAYS ARE DANGEROUS.

We visited an apiary a short time since, where the bee-keeper had discovered a case of foul brood; and having driven out all the bees, set the hive aside, securely (?) closed, until an opportunity offered for him to take the honey and destroy the combs. The hive naturally became a subject of conversation, and its weight was descanted on in connexion with the possibility that its being over full of honey was the cause of the disease; but on lifting it its *weight* was found to be gone—a mouse had evidently eaten away the paper thrust into the entrance hole, and given *entrée* to the bees from

other hives. If Mr. Mouse had heard the owner's remarks when he recognised the possible condition of his apiary next season, he would have given himself up to a cat straightway, to be out of the way of further mischief.

BEE FARMING IN DUNDEE.

Removal of Mr. W. Raitt.

Notwithstanding the sneers of old-fogyism, the bar-frame principle of bee-culture has proved, in the hands of our esteemed friend Mr. W. Raitt, of Liff-by-Dundee, so extremely profitable that he has determined to devote the whole of his time to bee-farming, and has bought a few acres of reclaimed moorland at Blairgowrie, on which to exercise his ability as a bee-master in pursuit of honey, and a cultivator of such things as bees love to fertilize. Mr. Raitt has been for many years a Public School-teacher, but had always a 'hankering' for a purely country life, and for the past few years has been looking out for some more congenial mode of getting a living for himself and seven motherless children. It appears that since the advent of School Boards he has been uncomfortably subjected to their 'driving' propensities, and in the meantime, having found the culture of bees on the bar-frame principle congenial to his tastes and highly profitable withal, he, taking a hint from the bees, has *swarmed out*, and though only yet living in a Make-shift hive, is building for himself a perfect Bar-framer on his own little 'farm of four acres,' which will henceforth bear the euphonious name of Bee Croft. Mr. Raitt's hopes may well be cheery; his land is laid out with strawberries just coming to perfection, yielding two tons of fruit to the acre, which realises about 30*l.* per ton, so there is a good prospect of interest for money invested. His neighbours grow, on their farms, strawberries '*galore*,' over a hundred acres being devoted to the culture of that delicacy to both bees and beings, while raspberries are grown in profusion, and furze, broom, and heather on the moor, come up to and crowd one side of his holding. Outside, the farmers grow abundance of white clover, and, as he will grow first early crops, his bees will have a good chance; and we wish him every success for showing so good an example. He will commence with 30 stocks, which he hopes to increase to 40 before the winter closes, and intends to double the number during next summer. He intends for the present to *deal* in nothing but honey, pure Scotch honey, no Yankee muck with over 50 per cent of glucose in it, but veritable honey 'obtained by the bees in the natural way.' Eventually 'bees' and 'comb foundation' will probably be amongst his 'wares,' and queens may be imported, but at present only such things will be provided for his own use. As showing the capabilities of the district, he reports that a working man reaped a pile of supers weighing 173 lbs. from one hive.* Mr. Raitt was the hon. secretary of the East of Scotland Bee-keepers' Association, but has now determined to devote his sole attention to his new 'business.' As regards hives, he uses simple boxes with simple frames, and says, 'Abbott's old original Cottage 6*s.* 6*d.* Crystal Palace hive stands amongst them still, unpainted, and with Abbott's card still upon it.' Mr. Raitt's new address will now be, 'Bee Croft, Blairgowrie, Perthshire,' where we trust he will be successful, that his energy, enterprise, and perseverance may be properly rewarded.

MR. SYMINGTON'S RECIPE FOR MEAD.

Take six gallons of water, 24 lbs. of honey, that which is the thickest and darkest is the best for the purpose; boil for half an hour, removing all scum as it rises, add three ounces of best hops; boil again for fifteen minutes, strain into a cooling vessel, and when lukewarm add six tablespoonfuls of brewer's yeast well stirred in. Allow it to work for twenty-four hours, remove the head and put the liquor into a five-gallon barrel, into which has first been put half a bottle of best pale brandy and two lemons, sliced. Leave the bung out and allow it to work over, filling up as it decreases with the spare liquor. When the working has ceased bung it down tightly and bottle in two years. Formerly it was the practice to put the brandy into the mead when bottling the latter, but it has been found that adding it in the barrel gives a much better result. For this delicious and wholesome beverage Mr. Symington was awarded the silver medal at Edinburgh in 1877, the silver medal at Dumfries in 1878, silver medal at South Kensington, 1878, and silver medal at Glasgow, 1878, facts which indicate this recipe to be a valuable one.

BRITISH BEE-KEEPERS' ASSOCIATION.

Journeyings of the Bee Tent in 1878.

With the view of diffusing a knowledge of bee-keeping, the Committee of the British Bee-keepers' Association instructed Mr. John Huckle, of King's Langley, Herts, to make an Exhibition Tent, capable of holding one hundred persons, with a space in the centre for the manipulator, in which the processes of driving and transferring might be carried on and witnessed in perfect safety by the public through a screen of gauze. An advertisement was inserted in the *Bee Journal* for an expert to conduct the manipulations, and give simple explanations of the displays given, in the service of the British Bee-keepers'

* This stock (a skep) was bought in the autumn of 1877, for half-a-crown, was fed up and looked after under Mr. Raitt's fostering care, and in the spring was set over a bar-frame which the bees quickly filled, and a queen having been provided for it, it set to work *in earnest*. The same skep did service in peopling three other bar-frame hives, and is a good stock yet.

Association. Five applications were received in answer, and from this number of candidates Mr. S. J. Baldwin, of Gipsy Cottage, South Vale, Norwood, was selected by the Committee. Letters were written by the honorary secretary to the committees of various horticultural and cottage garden societies explaining the object of the bee tent, and requesting them to allow it a place in their show grounds. The answers received were most favourable to the cause, and the mission of humanity and instruction was commenced early in the month of August.

The tent made its first appearance in the garden of the Royal Horticultural Society at South Kensington, at the great Metropolitan Show of the Association, on the 6th, 7th, and 8th of August. The driving competition was held in it on the first day of the show, the first prize being won by Mr. William Martin, of High Wycombe, Messrs. James Thorne and R. Symington taking the second and third honours. Other displays of driving succeeded on the following days, accompanied by short and simple lectures on the art of bee-keeping generally.

On Monday, August 12th, the Bee Tent was erected in the grounds of Rothampstead Park, near Harpenden, in Hertfordshire, by the kind permission of its owner—John B. Lawes, Esq. The necessary arrangements were made by the Rev. J. Hargrove, curate of the parish of Harpenden, who is most assiduous in promoting an improved system of bee-keeping amongst the labouring population in his neighbourhood. The meeting was opened by Colonel Smythe, who acted as chairman upon the occasion, and having been addressed by Mr. Peel as to the objects of the Association was entertained for nearly four hours by the displays given by Mr. Baldwin. Many questions were asked by the spectators upon different points connected with bee-keeping, and much information carried away. The work of the day was altogether most successful.

Rickmansworth, in Hertfordshire, sixteen miles distant from Harpenden, was the next place visited by the Bee Tent, on Wednesday, August 14th. The Rickmansworth Flower and Fruit Show was held in the grounds of Moor Park, the seat of Lord Ebury. His lordship, who is always anxious to promote every good work, gladly welcomed the representatives of the British Bee-keepers' Association. The elements were, however, against much real work being done. No manipulations could take place till nearly four o'clock, notwithstanding which a goodly number of people paid for admission to the Tent.

At Sevenoaks, Kent, on Thursday, August 22nd, the crimson flag (which surmounts the centre pole of the Tent) was next unfurled. An Exhibition of Bees and Honey, in connexion with the Fruit and Flower Show, was here promoted by Mr. J. M. Hooker, who is a member of the Committee of the British Bee-keepers' Association. Mr. J. Hunter attended the show, and superintended the manipulations, which were most successfully performed by Mr. Baldwin.

The Tent, once more carefully repacked, was duly forwarded to Sandy, in Bedfordshire, and was erected at the large annual Horticultural Show which took place there on August 30th. The exhibition of live bees had been well advertised by means of small bills, and a considerable number of people attended—more than 700 persons paid for admission to the Tent. The Rev. H. R. Peel, the hon. secretary, attended, and explained the objects of the Association and the benefits to be derived by keeping bees on the humane principle. He also gave a practical illustration of the simplicity in bee driving, as follows. Mr. Baldwin, the manipulator, being prepared to drive a stock of bees from a straw skep and the empty skep into which the bees were to be driven not being forthcoming, the hon. secretary volunteered the use of his hat for the purpose. The bees were successfully driven into the hat, and handed round for the inspection of the visitors, who were greatly amused at the incident.

Petworth, in Sussex, received the next visit, on Wednesday, September 11th. Mr. C. Allen, the hon. secretary of the Horticultural Show at Petworth, writes as follows:—'We had a most successful exhibition. Mr. Baldwin gave us great satisfaction. He appeared to us to be the very man for the work. We hope, all being well, to repeat the experiment next September, and confidently anticipate even better results.'

The campaign was brought to an end at Great Berkhampstead, Herts, on Monday, September 23rd, under the auspices of the West Herts Bee-keepers' Association, a small Bee and Honey Show was held. The manipulations in the Tent were performed in a most successful manner by Mr. Abbott, jun., assisted by Mr. Wm. Martin, kindly sent down for the occasion by Messrs. Neighbour, of Regent Street. The Rev. H. R. Peel and the Rev. E. Bartrum addressed the public at intervals, explaining the manipulations which were being carried out, and giving instructions in the art of successful bee-keeping. The day being short only three exhibitions could be given. Nevertheless nearly 400 people paid for admission to the Tent.

In closing the report of these visits of the Bee Tent to local flower shows we must congratulate the Committee of the British Bee-keepers' Association on having initiated a very useful work, the full development of which, we expect, will more plainly be seen next season.

BRITISH BEE-KEEPERS' ASSOCIATION.

Amendments to New Rules, as Published in the 'Bee Journal' for September.

3. That the Association shall consist of a president, vice-presidents, secretary and treasurer, *members*, and honorary members.

4. *Annual* subscribers of *5s.* and upwards shall be members of the Association. Donors of *5l.* and upwards shall be life members, &c. &c.

6. That all subscriptions shall become due and payable on the 1st day of May in each year, and if any subscription remain unpaid on the 30th day of April following the person not paying the same shall cease to be a member until his arrears are paid; *but no member shall be entitled to the privileges of the Association whose subscription is in arrear.*

8. That the Managing Committee shall be elected annually by voting papers, which the secretary shall cause to be sent to each member at least one month prior to the Annual General Meeting (which shall be held as early in each year as possible), together with a copy of the balance-sheet, the auditor's report of the preceding year, and the names and addresses of those members who are willing to serve on the Committee for the ensuing year (*any vacancy that may occur during the year to be filled up by the Acting Committee*). The president, vice-presidents, treasurer, and secretary shall also be elected at this meeting, and questions of the government and management of the Association shall be discussed and resolved upon.

11. That if the funds of the Association admit of it, the Committee shall *hold one or more* apiarian exhibitions, &c. &c.

13. The latter clause of this rule, commencing as follows—*Additional Rules and Regulations, &c. &c.*, to be struck out.

14. That all propositions at any meeting shall be disposed of by a show of hands; but a ballot *of the Members present* may be demanded *by any three members* in the room.

A BEE-KEEPERS' ASSOCIATION FOR HERTFORDSHIRE.

At a meeting of the Provisional Committee of the West Herts Bee-keepers' Association, held at Abbot's Hill, Hemel Hempsted, on Saturday, October 26th, the Rev.

H. R. Peel in the chair, it was resolved to adopt a suggestion made by the Right Reverend the Bishop of St. Albans to establish an association for the whole county. The Earl of Verulam, the Lord-lieutenant of Herts, has accepted the office of president, and the Bishop of the diocese, the Earl of Clarendon, Earl Brownlow, with Lords Ebury and Chesham, have consented to be Vice-presidents. The members for the county and the noblemen residing in the eastern division of Hertfordshire have been applied to for their co-operation and support, and we may soon hope to see a County Association of the Bee-keepers of Hertfordshire that will rival those of Lincolnshire, Devon, and Dorset, which have been working so successfully for some time past.

ARBROATH SHOW.

By a Correspondent.

The second annual exhibition of bees, honey, hives, &c. in connexion with the Horticultural Society Show, and under the auspices of the East of Scotland Bee-keepers' Society, was held in the New Public Hall buildings, on Friday and Saturday, 30th and 31st August. The space allotted to this department was in the picture-gallery; and as there were upwards of sixty entries, it occupied fully one-third of the hall.

The past season being very favourable for our industrious little friends, the display of honey was excellent. Honey-comb was exhibited in the form of stars, crosses, hexagons, shields, circles, hearts, &c., and in sections of different sizes and weights from one to four pounds each, and in supers from three to twenty pounds and upwards. Supers and sections were nicely sealed and finished—well built, and packed to the wood and glass, and all beautifully white and clean, while the straightness and regularity of the combs were matter of astonishment to the uninitiated, and proof of the care and skill bestowed by the bee-keepers. A gentleman from London remarked to your correspondent that he attended all the bee and honey shows that had been held in the metropolis, that he had seen a larger quantity of honey than was here, but he had never seen finer quality: and he was surprised at the shapes and forms of honey-comb, it was entirely a new feature to him. From what he had seen here and elsewhere in Scotland, he is inclined to think that Scotch bee-keepers are getting ahead of their English brethren. Some splendid supers were shown by working-men, a prize for which was given by C. W. Corsar, Esq., Seaforth. One of the competitors in this class, a railway platelayer, took ninety-two pounds of fine honey in supers off one bar-frame hive. By the old Pettigrewian system he used to work he would only have from thirty to forty pounds of squeezed stuff—drained honey (?)

As a proof of what bees can do in a good season, under the improved system of management, and in the centre of an agricultural district, the present writer has realised this year from nine stocks of bees, upwards of 600lbs. of pure honey-comb, without speck or blemish, and nearly 200lbs. of extracted honey, besides an increase to thirteen strong colonies, and a four-framed nucleus, all sufficiently provisioned for winter. Mr. Raitt, Dundee, was judge, and his awards, as follows, gave general satisfaction:—

Class A.—Honey and Wax.—Best single super in wood, or wood and glass, under 20lbs.—1, John Stewart, Letham Mill; 2, James Lorimer, Monifieth; 3, John Davie, Waulkmills. Best sectional super under 20lbs., combs separable, and not over 4 lbs. each—1, John Stewart; 2, John Davie; 3, James Lorimer. Best super, in straw, under 12 lbs.—1, John Nicoll, jun., New Cemetery; 2, John Davie; 3, James Stephen, Letham Mill. Best 6 lbs. run honey in show glass—1, David Smart, Waulkmills; 2, John Stewart; 3, C. Carnegie, Marykirk. Best 2 lbs. wax—1, Robert Walker, Letham Quarry House; 2, C. Carnegie. Six sheets artificial comb foundation—1, John Stewart; 2, W. W. Young, Perth. Best super over 15 lbs.—Special prize offered by C. W. Corsar, Esq., Seaforth, to cottagers or those who work for daily hire—John Christie, Waulkmills. Best design in honeycomb, in the form of a star, with not less than five points, and not less than 12 inches of diameter; must be built by the bees—James Lorimer.

Class B.—Hives and Bees.—Best and cheapest bar-frame hive complete, with floor-board super and roof—Robert Steele, Fowlis. Best honey extractor, combining cheapness with general efficiency—Robert Steele. Best and cheapest form of super for general use in apiary—Robert Steele. Best collection of bee appliances, no two articles alike, and each article to be indispensable to a well-managed apiary—1, W. W. Young; 2, Robert Steele. Best observatory or unicomb hive, to be exhibited stocked with bees—John Stewart.

BLAIRGOWRIE DISTRICT BEE-KEEPERS' SOCIETY.—HONEY SHOW.

The second exhibition of this Society was held in the Town Hall, Blairgowrie, on the 30th and 31st August. The energy of the committee of management was amply rewarded, in so far as there was, in every respect, a fine show: but more especially was this the case with the honey, which was abundant, and of splendid quality. Besides the honey, hives, &c. displayed for competition, there was a fine show of useful little instruments requisite for the proper culture of bees, shown by dealers. During the two days of the show a large number of visitors inspected the 'busy bee,' its works, and the appliances for making the most of its industry.

The following are the prize-winners:—

Class A.—Honey and Wax.—Largest and best harvest of super honey, the produce of one hive—1, Wm. Mann, Ann Street, Blairgowrie (17¾ lbs.); 2, James Rogerson, Perth Street, Blairgowrie (70 lbs.) Best single super in wood, or wood and glass, under 20 lbs.—1, Wm. Mann (19 lbs.); 2, G. A. Rolls, Leuthrathen (7½ lbs.); 3, Thomas Christie, Westmill (16 lbs.) Best sectional super, over 20 lbs., combs separable, and not over 4 lbs. each—1, Wm. Mann (22 lbs.); 2, Thomas Christie (20 lbs.); 3, G. A. Rolls (20 lbs.) Best super in straw, under 12 lbs.—1, T. Christie; 2, R. Steele, Fowlis by Dundee; 3, Wm. M'Laggan, Old Rattray. Run or extracted honey, 6 lbs. in show-glass—1, G. A. Rolls; 2, Wm. Mann; 3, James Rogerson.

Class B.—Hives and Appliances.—Best bar-frame hive complete, with floor-board, super and roof—1, R. Steele; 2, W. Young, Perth. Cheapest bar-frame hive, suitable for cottagers, with floor-board and roof—1, R. Steele; 2, W. Young. Best honey extractor, combining cheapness with general efficiency—1, W. Young; 2, R. Steele. Best form of super for general use in apiary; must be cheap, workable, and saleable—1, R. Steele; 2, W. Young. Best and neatest observatory or unicomb hive, stocked with bees—1, W. Young.

Class C.—Special prizes confined to members of the Society.—Best two combs in bar-frame—1, Wm. Mann; 2, J. Rogerson. Heaviest and best super in straw—1, Wm. Cameron, Wardside.

The judges were Mr. H. Lorimer, Coldside, Dundee and Mr. Wm. Stewart, Leslie Street, Blairgowrie.

FLOWER AND HONEY SHOWS AT BANCHORY.

(*From the 'Aberdeen Daily Free Press.'*)

Under the auspices of the East of Scotland Bee-keepers, Society, a combined show of honey-bees and flowers, open to the Deeside district, was held in the Town Hall, Banchory, on Saturday, Sept. 14. On account of some difference of opinion in the committee of the Banchory Horticultural Association, the exhibition which used to be held annually, died two years ago, and up to this time has not been brought again to life. Encouraged by their success at the parent society's show in Dundee, the Inchmarlo bee-fanciers started the idea of forming a branch

for Deeside. On previous occasions we have attempted to point out what must be patent to everyone who takes the trouble to study the subject, that bee-keeping can be made a profitable pursuit if a systematic course of culture and management, such as lately a few of the more experienced breeders in our district have followed with success, be carried out. No better proof of the need of enlightenment in this science could be had than the exclamations of surprise by casual visitors at seeing the frames and hearing explanations as to the habits of this most industrious insect. Exhibitions such as these are the only means by which an interest can be incited among those who never before bestowed a thought on the subject, and a healthy competition tends to bring out the genius of the inventor of improvements both in hives and appliances.

The bee show was as successful as the most sanguine could wish. There were upwards of fifty entries in the honey class, and the exhibits were of first-class quality. Of the honey it has to be said that some of the samples were very pure and clear, while others were but indifferently pure. The first prize jar of clover honey was exceptionally clear and valuable. In the competition for the best observatory stocked with bees Mr. Richard M'Gregor had the magnificent frame which secured for him such praise at Dundee. There was a large competition among the single-walled frame hives, and doubtless by next year the makers of these houses will see that it is for their advantage and reputation to take a little more pains in their construction, as the judges seem determined to notice every detail. The judges were Messrs. Stewart, Arbroath, and Mr. Smith (of Gordon and Smith), Aberdeen.

The following is the prize list:—

The heaviest and best harvest of super honey, the produce of one hive (2 entries)—1 A. Gordon, Inchmarlo; 2 R. M'Gregor. Heaviest and best super (3 entries) — 1 R. M'Gregor; 2 William Ross, Inchmarlo; 3 David Lyall, Skene. Best super, under 10 lbs. (8 entries) —1 R. M'Gregor; 2 James Rae, Inchmarlo; 3 Alexander Collie. Do. best sectional super, over 10 lbs. (3 entries) — 1 John L. Brebner, Inchmarlo; 2 David Lyall, Skene. Run or extracted heather honey (9 entries)—1 William Young, Inchmarlo; 2 James Rae, do.; 3 James Collie, do. Run or extracted clover honey (5 entries)—1 John L. Brebner; 2 James Macintosh, Banchory; 3 James Shearer, Inchmarlo. Best sample of wax (4 entries)—1 Richard M'Gregor, Inchmarlo; 2 John L. Brebner; 3 James Shearer. Best design in wax—Miss Robertson, Tilquhilly.

Hives.—Best observatory hive stocked with bees (1 entry) —Richard M'Gregor. Cheapest and best single-walled bar-frame hive suitable for cottagers, with floor-board (5 entries)—1 R. M'Gregor; 2 W. Young. Best bar-frame hive with floor-board and roof—price not to exceed 15*s.* (3 entries) —1 J. Fiddes, Inchmarlo; 2 W. Young, Inchmarlo.

HONEY FAIR AT GRANTHAM.

We record with great pleasure the introduction of a novelty in the apiarian world, initiated by the Lincolnshire Bee-keepers' Association; we refer to the Honey Fair held on Tuesday last, in the Westgate Rooms. We call it a novelty, because it is believed to be the first Honey Fair ever held in England, apart from an exhibition; consequently, it awakened considerable interest, and some degree of curiosity in the minds of apiculturists and the public, as to the success by which the fair would be attended. It has long been an unsolved question in the minds of bee-keepers, 'What are we to do with our honey when harvested?' The Grantham Honey Fair has now answered the question. The bold attempt to establish a fair has been attended with the greatest possible success, and it is fully proved that the honey has only to be presented to the public (in our neighbourhood at least) in a saleable form, to readily realise its full value. We believe that one solitary brown jar remained at the close of the sale. This result surely needs no comment, but will be a lesson to some bee-keepers, who, fearful as to the success of the undertaking, kept their honey at home. The hall was tastefully decorated with fine foliage plants, kindly lent by the Earl Brownlow, and arranged by Mr. Bolton; these, together with a large display of flags and banners, which R. J. Boyall, Esq., liberally granted the use of, gave the room a very attractive appearance. The latter were erected by Mr. Jno. Hall with his usual good taste. The honorary treasurer, Mr. Levick, with the honorary secretary, Mr. R. R. Godfrey, and Messrs. Holloway, Brett, Ashwell, Plowright, Lowe and Pawson, and other members of the committee, kindly assisted by Mr. Eaton, conducted the staging of the honey in a most effective manner, thereby adding much to the success of the fair. Upwards of a ton of honey found its way into the Westgate Rooms, nearly nine hundredweight of this being forwarded by members of the Lincolnshire Association. All the honey sent by members was disposed of (with the exception of one jar), at prices ranging from 10*d.* to 1*s.* per pound. Captain Martin, of King's Somborne, Hants, one of the largest bee-farmers in England, was one of the principal contributors; his honey being in canisters, did not appear to be so favourably received as that in glass jars, although the quality was equal to any in the fair. In the evening, Mr. Escritt was solicited by the committee to offer by auction the honey remaining unsold, and he succeeded in disposing of a vast quantity. Several beautiful supers were exhibited and disposed of, but we venture to think that had there been some of these pleasing little block or sectional supers of honey in the comb, at from one to three pounds weight, they would have realised good prices. The fair was patronised by the Mayor of Grantham (C. Baske, Esq.), Mrs. Gregory (Harlaxton Manor), Miss E. Welby, W. Ostler, Esq., together with a large number of ladies and gentlemen of the town and neighbourhood.—*Grantham Journal.*

HONEY USED FOR COOKING PURPOSES.

The *American Bee Journal* says:—

'Instead of dealing disease and death promiscuously to those who indulge in its use, as do syrups, honey gives mankind, in the most agreeable manner, both food and medicine.

'It is a common expression that honey is a luxury, having nothing to do with the life-giving principle. This is an error—honey is food in one of its most concentrated forms. True, it does not add so much to the growth of muscle as does beefsteak, but it does impart other properties no less necessary to health and vigorous physical and intellectual action! It gives warmth to the system, arouses nervous energy, and gives vigour to all the vital functions. To the labourer it gives strength—to the business man mental force. Its effects are not like ordinary stimulants, such as spirits, &c., but it produces a healthy action, the results of which are pleasing and permanent—a sweet disposition and a bright intellect.

'The use of honey instead of sugar for almost every kind of cooking, is as pleasant for the palate as it is healthy for the stomach. In preparing blackberry, raspberry or strawberry short cake, it is infinitely superior.

'Well purified honey has the quality of preserving, for a long time in a fresh state, anything that may be laid in it or mixed with it, and to prevent its corrupting in a far superior manner to sugar; thus many species of fruit may be preserved by being laid in honey, and by this means will obtain a pleasant taste and give to the stomach a healthy tone. One who has once tried it, will not use sugar for preserving fruit; besides, honey sweetens far more than sugar.

'In fact, honey may replace sugar as an ingredient in the cooking of almost any article of food, and at the same time greatly add to its relish.

'Digestion (all-potent in its effects on the mind as well as the body) depends largely on the food. Poor food received into a poor stomach is the cause of many unhappy homes, while good, healthy food, received into a healthy stomach becomes "an angel of peace" to many a household.

'The following are a few of the many desirable things that may be made, with honey as an ingredient:

'HONEY LEMON CAKE.—One cup butter, two cups honey, four eggs well beaten, teaspoonful of essence of lemon, half cup of sour milk, teaspoonful of soda, flour enough to make it as stiff as can be stirred; bake at once in a quick oven.

'HAMBURG HONEY CAKE.—The flour intended for this cake should be well dried and sifted before being weighed: then take twelve pounds of flour and twelve pounds of honey; bring the honey to a boiling heat, pour it in the flour, and mix thoroughly. Dissolve two and a half ounces of pearlash in two gills of rose-water, the evening before; take one pound of butter or lard, two table-spoonsful of West India rum, the grated rind of two lemons, the candied or sugar-coated rind of two oranges, and a very small quantity of pounded cloves. The solution of pearlash is to be added when the dough has become cool, and the mass must be thoroughly kneaded. The dough may be prepared several days in advance of the baking.

'HONEY BROWN CAKE.—To four pounds of flour take four pounds of honey, half pound of pulverised loaf or lump sugar, half ounce of Canella, three ounces of lard, a small quantity of cloves, one ounce of pearlash, one gill of rose-water, and two spoonsful of rum or French brandy. The honey and lard are to be incorporated by boiling, and when again cooled off, add the pearlash previously dissolved in the rose-water. Knead the mass well, let it stand several days, and then work it over again very thoroughly. Some persons prefer to omit the cloves, and substitute for them pounded cardamom seeds, grated lemon-peel, or sugar-coated orange-peel.

'HONEY APPLE CAKES.—Soak three cups of dried apples over night; chop slightly, and simmer in two coffee cups of honey for two hours, then add one and a half coffee-cups of honey, half coffee-cup of sugar, one coffee-cup of melted butter, three eggs, two teaspoonful saleratus; cloves, cinnamon, powdered lemon or orange-peel, and ginger syrup, if you have it. Mix all together, add the apples, and then flour enough for a stiff batter. Bake in a slow oven. This will make two good-sized cakes.

HONEY FRUIT CAKE.—Four eggs, five cups of flour, two cups of honey, one teacupful of butter, one cup of sweet milk, two teaspoonsful of cream of tartar, one teaspoonful of soda, one pound of raisins, one pound of currants, half-pound of citron, one teaspoonful each of cloves, cinnamon, and nutmeg; bake in a large loaf in a slow oven. This will be nice months after baking as well as when fresh.

'HONEY SPONGE CAKE.—One large coffee-cup full of honey, one cup of flour, five eggs. Beat yolks and honey together, beat the whites to a froth; mix all together, stirring as little as possible; flavour with lemon-juice or extract.

'RAILROAD HONEY CAKE.—One cup of honey, one heaping cup of flour, one teaspoonful of cream of tartar, half teaspoonful of soda, three eggs and a little lemon juice; stir all together ten minutes. Bake twenty minutes in a quick oven.

'Honey can be used in cooking anything, just as sugar is used, merely using less milk or water than called for when sugar is used, on account of honey being a liquid.

'MILK AND HONEY.—Take a bowl of milk and break some light wheat bread and also some white comb honey into it. This is delicious, the proverbial "milk and honey" of the ancients.

'HONEY CAKE.—One quart of extracted honey, half pint of sugar, half pint of melted butter, one teaspoonful of soda, dissolved in half teacup of warm water, half of a nutmeg, and one teaspoonful of ginger. Mix these ingredients and then work in flour and roll. Cut in thin cakes and bake on buttered tins in a quick oven.

'GERMAN HONEY CAKE.—Three and a half pounds of flour, one and a half pounds of honey, half pound of sugar, half pound of butter, half a grated nutmeg, one-sixth of an ounce of ginger, quarter of an ounce of soda; roll thin, cut in small cakes and bake in a hot oven.

'CHEAP HONEY TEA CAKE.—One teacup of extracted honey, half teacup of thick sour cream, two eggs, half teacup of butter, two cups of flour, scant half teaspoon of soda, one teaspoon of cream of tartar: flavour to taste.

'HONEY GINGER CAKE.—Three cups of flour, one and a half cup of butter: rub well together, then add one cup of brown sugar, two large tablespoonsful of ginger, and, if you like, the same amount of carraway seeds; five eggs, two cups of extracted honey, and three teaspoonsful of baking powder. Beat it well, and bake in a square iron pan one hour or more.

'HONEY CAKES.—Four cups of extracted honey, one cup of butter, two teaspoonsful of baking powder, and flour added by degrees, to make a stiff paste; work well together, roll out half an inch thick, cut into cakes, and bake in a quick oven. See that they do not burn.

'HONEY TEA CAKES.—Three pounds and a half of flour, one and a half pound of honey, half pound of sugar, half pound of butter, half a nutmeg grated, one tablespoonful of saleratus, or carbonate of soda. Mix the sugar with the flour and grated ginger, and work the whole into a smooth dough with the butter beaten to cream, the honey and saleratus, or soda, dissolved in a little hot water. Roll it a quarter of an inch thick, cut it into small cakes, and bake them twenty-five minutes in a moderate oven.

'HONEY COOKIES.—Mix a quart of extracted honey with half a pound of powdered white sugar, half a pound of fresh butter, and the juice of two oranges or lemons. Warm these ingredients slightly, just enough to soften the butter, and then stir the mixture very hard, adding a grated nutmeg. Mix in gradually two pounds or less of sifted flour, make it into a dough just stiff enough to roll out easy, and beat it well all over with a rolling-pin; then roll it out into a large sheet half an inch thick, cut it into round cakes with the top of a tumbler dipped frequently in flour, lay them in shallow tin pans slightly buttered, and bake them.

'HONEY CAKES.—Three cups of honey, four cups of sour milk, half a cup of butter, soda to sweeten the milk; mix rather stiff.

'HONEY GINGER SNAPS.—One pint of honey, three-quarters of a pound of butter, two teaspoonsful of ginger; boil together a few minutes, and when nearly cold put in flour until it is stiff; roll out thinly and bake quickly.

'HONEY PUDDING.—Three pints of thinly-sliced apples, one pint of honey, one pint of flour, one pint of corn meal, small piece of butter, one teaspoonful of soda, the juice of two lemons and their grated rinds; stir the dry soda into the honey, then add the apples, melted butter and a little salt; now add the lemon rind and juice and at once stir in the flour. Bake one hour. Serve hot or cold with sauce.

'GRAPES PRESERVED WITH HONEY.—Take seven pounds of sound grapes on the stem, the branches as perfect as possible, pack them snugly without breaking, in a stone jar. Make a syrup of four pounds of honey, one pint of good vinegar, with cloves and cinnamon to suit (about three ounces of each), boil well together for twenty minutes, skim well, then turn boiling hot over the grapes and seal immediately. They will keep for years, if you wish, and are exceedingly nice. Apples, peaches, and plums may be done in this way.

'Preserving Fruits.—Put honey and fruit in a vessel, then put the vessel in a kettle of water and boil, the same as with sugar.

'Honey Liquorice.—Honey and a strong infusion of liquorice boiled to a proper consistency.

'Honey-foam (*sputum*).—Prepared by beating, with the addition of a small quantity of white of eggs. It is used to brush over cakes and confectionery before baking.

'Honey Preserves.—All kinds of fruit made into jam, with honey instead of sugar, are nice. Batter made with extracted honey, is much nicer than when made with sugar. For grapes, pick from the stem and pack into a jar until it is full, then turn cold honey over them until they are covered well. Seal up without any heat, and keep in a cool place. After a few months they will be found to be delicious.'

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

DESCRIPTION OF THE 'PARSON'S BEE VEIL,' NOW THE 'STANDARD' FOR BRITISH EYES, EITHER SINGLY OR UNITED.

Piece of wire (iron wire) gauze 9 × 7 inches (to allow for turning over); interstices, $\frac{1}{8}$ of inch. Piece of clear glass—patent plate preferable—edges rubbed on emery stick or grindstone; size, 4 × 2 inches. The edges of gauze turned over $\frac{1}{2}$ inch all round, to prevent unravelling. Hole cut in gauze

about $1\frac{1}{2}$ inch from top, 3 inches long, and 1 inch wide. Remove the loose threads of wire, and then turn backwards and forwards the bristles of wire, so as to make a groove for the glass. After glass is placed in 6 (with small pliers) turn up end of wire like this, ρ ρ ρ ρ, so as to prevent points scratching your face. Then hold the glass and wire over spirit lamp until quite hot, and while hot run some Collins' Elastic Glue (one penny a stick) all round the edges of the glass and the gauze next the glass, and you have a perfect strong frame for the glass. Bind the whole piece round with wide and strong black tape, and insert the window at the proper place in a strong black veil of *open texture*. For people like myself, whose sight is not good, and whose eyes the ordinary veil—or 'Dr. Pine's Veil'—bothers greatly while finding queens, &c., the thing is a luxury. The value of the whole affair would be about 3*d.* or 4*d.*; one hour's work (say) 10*d.* Retail price, 2*s.*

CHAPLIN'S COMBINATION HIVE (THE COLSTON).

This is the outcome of an effort on the part of its designer, to construct a hive that should embody in one all the necessary requirements for supering, nadiring, doubling, &c., without the need of cutting holes in the floor, or in any way injuring the hive, by altering its working from one system to another, a result attainable in no previous arrangement.

The size of hive is, inside, 17 in. at top, and 16 in. at bottom, from back to front, by $16\frac{1}{4}$ wide. The size outside is $20\frac{1}{2}$ in. long, by 17 in. at top, and 18 in. at bottom wide. The boards of which it is made are cut taper, being half inch on one edge and inch on the other. The thick edges are placed downwards, and the sides are rebated half their thickness so as to cover the edge of the floor-board, the top of another hive, or a nadir, as the case may be. The front has a groove in its under edge for stops to run in, so that the entrance may be entirely closed or opened the whole width of the hive, or if thought desirable, a strip of adaptor zinc may be run in to prevent the queen leaving.

The legs are notched under and run up 4 in. on the sides, to which they are fixed by screws, to allow of their removal in case of doubling. Along the front in a line with the top of the legs a porch is fixed, and along the back to the same height, is a double thickness of glass and a shutter hinged to fall downwards. The roof is made 9 in. deep at sides, 12 in. at centre, and is made to slide down over the hive $7\frac{1}{2}$ in. and fit closely at the top of legs, porch, &c., so as to form an extra outer casing in winter, with no fillets or projections (excepting the porch) for the lodgment of snow or damp. When supers are on, the roof may be raised to allow room for one super or for storifying to the extent of two 4 in. supers and half-a-dozen sections on the top, and will keep all dry.

The top bars are made with widened ends, and are kept in place by hinged strips on Abbott's principle. The side strips are cut taper, being $\frac{9}{16}$ at top and $\frac{1}{16}$ at bottom, the stout end being fixed against a shoulder in the top-bar, it is very strong, and the bottom bar is dispensed with. Combs may be built on each bar $15\frac{1}{2}$ in. by $10\frac{1}{2}$ in.

The hive is fitted with two dummies, interchangeable with the bars, each having a strip of adaptor zinc along the bottom edge, covered by slips of wood, so that they may be used solid for the purpose of contracting the size of the hive, or by unscrewing the slips they may be used to take pure honey collaterally, the perforations allowing only the workers to gain access to any combs that may be shut off for that purpose.

The floor-board is $\frac{7}{8}$ in. thick, is clamped and reversible. It is kept in place by a notched rack screwed to each of the back legs, and a long button to each leg in front. It is capable of being lowered in front, and all round or entirely removed, and that with greater facility than where wedges are used.

The adaptor is made of strips of wood and strips of zinc, the slots being made by cutting (carefully by hand) two round holes into one, the perforated zinc used being No. 11 hole.

The super is made with glass and shutters at the sides, with wood ends, and a division across the centre, so that the bees may only be given access to half if desirable. It is fitted with slips of wood easily removed with the comb on when filled, it is also fitted with a set of sections that may be hung in it, and to which it will act as an outer case. The sections may be used on the top when the slips are used in the super. A runner is fixed on the top of each side of super, of the same thickness as the floor-board, which allows of its being easily run in and secured under the hive when used as a nadir, for which purpose it is also fitted with a bottom easily removed, so that it may be cleansed and the dead cast out. The quilt is made of a sheet of boiler felt (best non-conductor) between two pieces of cheese cloth, which are tacked on strips of wood, with another piece of cheese cloth to place on the bars.

This hive was awarded the first prize at Westbury-on-Trym, and at Exeter it was placed third. It is well made of selected and well-seasoned pine, at price 55*s.* by—CHARLES CHAPLIN, *Westbury-on-Trym, near Bristol, Oct.* 21*st*, 1878.

PATERSON'S NEW BAR-FRAME BEE FEEDER.

I was not a little surprised to find, from a letter in your last, that my friend and neighbour, Mr. Cameron, publicly challenges my claim to be the inventor of the Bar-frame Bee-feeder, for which I obtained the Caledonian prize at Dumfries; at least this is substantially what his letter means. I have simply to say that he must be labouring under a delusion. He received the first idea and his first specimen from me, and if he has improved on either it is strange that, though invited more than once to send one to the show at Dumfries, he did not, neither did he send one to Dundee or Glasgow six weeks after. What a 'Bank Holiday' has to do with all this I cannot tell, and so far as I know he has not yet succeeded in making one that would work satisfactorily.—DAVID PATERSON, *Struan, Perthshire, Oct.* 19*th*, 1878.

INQUIRIES AND REPORTS FROM CALIFORNIA.

In the American Bee-keepers' Magazine for September, I see an account of a show held by the British Bee-keepers' Association, at the Royal Horticultural Gardens, South Kensington. Amongst others were prizes for run honey, in glasses, to hold 5 lbs. to 10 lbs. each, also for the best and cheapest honey jars (to hold 1 lb. and 2 lbs. of extracted honey) with covers and fastenings complete. I would be exceedingly obliged if any of your readers would kindly give me some particulars about these 5 lb. and 10 lb. glasses, and the 1 lb. and 2 lbs. jars (are the latter made of glass?) as to price per gross, and who manufactures them, or any other package to hold liquid honey, which you would recommend; also if they could give me any idea about what the freight would be to San Francisco, by such vessels as Messrs. Crosse and Blackwell send their goods by? (from London). Bees have done well here this season, notwithstanding the weak condition they were in last spring, owing to the drought of 1877. Starting last spring with 115 stands, we kept them from swarming as much as possible, and obtained ten tons of extracted honey and twenty-five increase swarms; we could have doubled our original number (115), but would not have obtained near so much honey. Bees are in moveable frame hives with top boxes, both boxes being the same size, viz., 17½ in. long, 14 in. broad, and 12 in. deep, the frames going lengthwise in the hive. We are about twenty-five miles from Anaheim, up in the mountains, where there is abundance of natural bee feed, such as white sage, sumach, button sage, and many other well-known honey plants. We would have obtained more honey had May been fine, as it generally is a good honey month, but this year it was foggy almost all and every day, so that the bees could not work; however, we are well satisfied. Hoping you will excuse me for troubling you so much.—W. H. BENTLEY, *Anaheim, Los Angeles Co., California, U.S.A., Sept.* 15*th*.

[Perhaps some one interested in the bottle and jar trade will give information on the points raised through this *Journal* if they please, or otherwise, if so disposed.—ED.]

CYPRIAN BEES.

In the *Standard* of Oct. 9th there was a review of an Austrian officer's description of Cyprus, in which occurs the following:—'The excessive dryness and the flocks of locusts are the most frequent scourges of the island, and a year of abundance is frequently followed by a year of sad dearth which renders a careful discretion in the exportation of grain a necessity. The forests, composed of cedars, pines, and cypress, as well as of oak and other trees, furnish excellent wood for building and ordinary use. Horned stock is *not considerable*. The same may be said of *bees* and silkworms.'

[Has any one really seen Cyprian bees out of print?—ED.]

BRAZILIAN BEES.

As the account of the nature and habits of any of the distant cousins of our little favourite the bee is interesting to your readers, I have made the following extract from a very interesting book—*Pioneering in South Brazil*, by Thomas P. Bigg-Wither:—

'The Mirim is a small, black, stingless bee, inhabiting, in countless numbers, the forest of South Brazil. It is

about the size of a house-fly, though more clumsily made. From ten in the morning till four in the afternoon it never ceases its activity. It settles in countless numbers upon the back of the neck and back of the hands, occupying in these parts every available space. It is impossible to eat one's luncheon without devouring half-a-dozen more. If you open your mouth wider than usual to give a shout, a bee seizes the occasion to explore the cavity within, and your shout terminates in an ignominious splutter. In time I came to look upon them as a useful shield against mosquitoes, for on their favoured localities they were crowded so thickly together that no mosquito had a chance to insert his proboscis. It was not, however, merely as a shield against other and more bloodthirsty insects that the Mirim bee is so serviceable to the forest dweller, but it is on account of the vast store of honey which it lays by in every tree, which honey, in fact, is one of the most useful natural products of these great forests. Numerous as the nests of this bee are, it is very rarely indeed that they can be discovered by any but the most practised eye. The reasons of this are—first, the very minute size of the insect itself, which renders its flight to and from its nest almost invisible in the gloomy shades of its forest home: and secondly, the careful instinct which causes it generally to select a spot on the smooth trunk of an apparently solid tree for the door of its abode. By some wonderful instinct the Mirim discovers a hollow in the heart of an apparently solid tree, where the most experienced forester would not dream of expecting the existence of a cavity. Through the outer covering the little animal then bores a tiny gallery, which runs, perhaps, for six or eight inches through solid wood before reaching the hollow within. In order still further to diminish the chance of the entrance of any enemy, from the mouth of its gallery it constructs a tiny tube or chamber of wax, which when completed protrudes out at right angles from the trunk of the tree to a distance of from half an inch to an inch.

'Were it not for this little external construction, which is doubtless made to conceal the aperture from certain species of red ant, which is very fond of running up and down the trunks of trees searching for grubs and larvæ, it would be almost impossible for human eye to discover the nest. We had one or two men who possessed the faculty (I might almost say "instinct") which enabled them to find as many bees' nests in an hour as would supply our whole camp with honey for a week. The honey itself is not contained in comb, like that of our common hive bee, but in bags, each of which may hold from a tea-spoonful to a table-spoonful of pure liquid. The flavour is most delicious, and is usually slightly acid. The honey always tastes cool and fresh, even in the sultry weather, when the thermometer is perhaps standing at 98 deg. Fahr. in the shade.

'Unlike our common hive-bee, the Mirim does not make its honey from flowers. In the first place, the flowers of the forest are few and far between, and would be altogether insufficient for the sustenance of the vast armies of these bees; and in the second place, I never observed a Mirim bee to settle upon any flower. Their natural food seems to consist chiefly of decaying animal matter, and out of these refuse stores of nature they form the delicious honey with which the forest abounds.

These bees seem to have anticipated Messrs Price and Co. in producing 'pure glycerine.' Some time ago, in your *Journal*, some one proposed feeding bees on carrion: had he kept Brazilian bees, there would have been nothing ridiculous in the suggestion.—RAVEN, *Oct. 24th*, 1878.

[It may be comforting to some of our friends to find from this that bees—at least *some bees*—do *make* honey. —ED.]

BEES AND WAX-MOTH IN AUSTRALIA.

You may remember me your old pupil and correspondent. I am now enjoying our interesting occupation in this sunny land, which is positively flowing with honey nearly all the year round; but alas for the poor bees! the wax-moth is so strong they are almost destroyed from the colony. They were first introduced about twenty-five years since. Ten years later when my husband came out, they were swarming in almost every tree; when honey was wanted, they cut down a tree, and carried the comb away in buckets full. But within the last few years the wax-moth has made its appearance, through the slovenly way in which the poor bees are kept by those who are still trying to keep them; they stand no chance whatever against their enemies. They are put into a packing-case, or anything else that comes to hand, and stood upon the ground, very likely, not even covered over.

On hearing how the bees were becoming fewer and fewer in the neighbourhood, I resolved on bringing my experience to bear and see if I could succeed any better than others. My husband made some hives after your approved pattern, and we sought for bees to put into them. After some months we got a poor, weakly stock, with two combs of brood, and about a double handful of bees, for 50*s*. We have fed them and tended them most carefully, but the moth is so diligent we find dozens of worms on the floor-board every time we move it. They are very large creatures, quite an inch long, and of a dirty grey white. Even the morning after giving the clean floor-board, we found two under the piece of wood that contracted the opening. They do not appear to have touched the comb in the frames, but content themselves with the *débris* that falls on the board. I know everything that was said for three or four years in the *Journal* on the subject, but think that perhaps, since then, something may have been suggested and found efficacious in destroying them.

Would you kindly inform me if such is the case? I very much regret my inability to see the *Journal* now.

So great is the dearth of bees throughout the land, that my husband when we failed to hear of any, spoke to some of the black fellows whom he knew, inquiring if they could get him some from the bush. The reply was, 'What'm do honey bee? 'm all fly back England? baal any left,' (*i.e.* none left). So you see how great a service you will be rendering us poor colonists if you can suggest any remedy for this terrible evil. Trusting you will consider the great interest you have been the means of awakening in my mind on the subject a sufficient excuse for my troubling you at this great distance.—P. J. W., *Merton Road, South Brisbane, May 6th*, 1878.

[We are delighted to know that the slight services we were enabled to render to our esteemed lady-correspondent in England, are so kindly remembered in the far distant land whither good fortune has so happily placed her, and we wish we could now be of use beyond what we then taught on the subject. We know of no method of defeating wax-moth beyond that generally understood (excepting the American idea of keeping Ligurian bees

only, which they say will not permit the entry of moths or worms to their hives) which consists in using tight wooden boxes for hives, leaving no cracks or joints in the walls or floor into which the moths may thrust their eggs, with a chance of the young finding a means of living in the form of comb chips, or wax scales such as are often found on floor-boards. We would use hives of a form which presents the ready removal and cleaning of floor-boards and the lower edges of the hives also, for it is often between the two that the fine particles of wax find their way from the inside, while the moth inserts its egg from the outside, and the larva thus finds a congenial home, and whence, when grown sufficiently large, it emerges, and attacks the comb: if the bees will permit it to do so. We are greatly obliged to our lady-friend for the extremely interesting letter with which we have been favoured, and feel sure our readers, in common with us, would be glad to have more from her able pen. It is exceedingly to be regretted that so little trouble has been taken to preserve bees against their enemies, especially this most insidious of all, which flies by night, depositing eggs wherever the odour of a hive can be detected; and where bees live(?) in hollow trees, or are located as described, it is not surprising that they get the upper hand.—Ed. *B. B. J.*]

THE PETTIGREWIAN LIBEL.

Sometime in August or September there appeared in the *Journal of Horticulture* a letter written by Mr. Pettigrew, in which he stated that straw skeps had been refused admission to Crystal Palace bee shows. The 'Renfrewshire Bee-keeper' adverted to this accusation in a letter in the same paper a week or two afterwards, and said that for the credit of the British Bee-keepers' Association, he hoped such a statement would be at once denied by their secretary. Such has not been the case, and I fully expected in your issue of Oct. 1st to see the matter commented upon by some one or other of your numerous correspondents.

I now feel it my duty as one of those who drew up the first rules, regulations, and conditions under which a national show was held, to give this statement of Mr. Pettigrew's a most emphatic denial, and I even go further, and say that in my opinion it is a wicked perversion of fact, recorded in an obscure corner of a journal that does not find its way into the hands of many bee-keepers, which, if uncontradicted, would some day be pointed out by the man 'on the paddle-box' as proof of how very unfairly he and all his crew had been used.

Now, sir, you as well as I, knowing what were the intentions of the compilers of the rules for the Crystal Palace shows (which by the way have been little altered since, more's the pity), seeing that we, with one 'other, were the compilers, and will endorse my statement that those rules were framed so that straw hives could compete in every class for honey, and most if not all for hives, with the expectation that there would be strong competition between the two schools of bee-keepers, the bar-frame hivists and the straw skepites, and with the wish that each should have an equal chance. What, however, was the result? very few of the latter school competed, and the former so soon proved themselves capable of beating all comers of the olden style, that *they* very quickly retired. Let Mr. Pettigrew deny if he can that *the* prize of the year has always been offered, 'For the largest and best harvest of honey from one hive or stock of bees, on any system or combination of systems;' and then let him explain why the wonderful hives we read of in the *Journal of Horticulture* have never been seen in competition. I, for one, having read of many, and never seen one, am inclined to doubt their existence.

Having had the opportunity of exhibiting these wonders every year that the British Bee-keepers' Association have had a show, and at numerous shows all over the country, and never having attempted to show how much better harvests can be obtained from straw skeps than from what *he* terms puffed-up novelties (frame-hives), he now makes an accusation as unwarranted as it is untrue, I suppose as a reason why he has never attempted to compete.—R. Symington, *Little Bowden, Oct. 24th*, 1878.

HONEY BUZZARD IN THE ISLE OF WIGHT.

(*To the Editor of the 'Hampshire Advertiser.'*)

Sir,—As I was shooting in Bordwood Coppice on the 7th inst. (a short distance from here), I came quite unexpectedly on this rare bird (*Buteo apivorus*), which I was fortunate enough to secure. I found in its mouth a quantity of the larvæ of wasps or bees, which induced me to go to the spot from whence it rose, and then I discovered a wasp's nest with large quantities of comb lying about. I took the bird to Mr. Smith, taxidermist, of Newport, who found it to be an adult male, the expansion of wing being 4 feet 1 inch. On opening the stomach, Mr. Smith discovered both comb and larvæ of wasps, which he has preserved.—Faithfully yours, H. W. Jacob, *Royal Cliff, Sandown.*

THE COMBINATION HIVE.

What a state of perturbation
Amongst the bee-men of the nation,
By Abbott's notification
Of the perfect Combination!

On reading of your notion of bars across, you can scarcely realise how pleased I was, as I felt satisfied in following—or rather being in the van of our captain's regiment. I had the fortitude to order my hives, for the season now past, with bars across the doorway, notwithstanding the almost unanimous opinion of scientific bee-masters to the contrary. My attention was at first directed to it eight years ago. A straw skep in spring on examination was in so much better condition than the others that I never lost sight of, having the comb at right angles with the entrance. For early breeding in spring my experience is in its favour, and the same can be said of late breeding in the fall.

Collateral space for storing honey is not in very great repute, but the trial I made of it was quite favourable, and I mean to have it adopted with all my new hives. In my experiment I used no perforated zinc or anything to prevent the queen from depositing eggs, yet I had not any pollen stored in the honey frames, but then that was probably more a peculiarity of the hive than a thing to be depended on.

The Combination is in advance of the times, and therefore must meet with opposition, but by the

enlightenment of the *Bee Journal* and bee associations, all these prejudices will vanish.—Angus Cameron, *Blair Atholl, Oct. 23rd*, 1878.

ARTIFICIAL SWARMING.

I see you often speak of artificial swarming in the *B.B.J.* as if it was a very simple thing. I tried it on one hive this spring, and lost my hive of bees; will you tell me where I was wrong? I bought three stocks of Ligurians last autumn, one of which was in a Makeshift hive, but as it was rather late in the year, I left them in the Makeshift for the winter, giving them good protection. I fed my bees through March and April, and by the 26th of April I found that the Makeshift hive had plenty of drones out, and was getting very full of bees, so on the 7th of May I thought I might be able to shift the bees into a new hive, and make an artificial swarm at the same time; so I took for my artificial swarm three combs from the centre of the hive and one from the side, and put this hive on the old stool, and placed the remaining six bars with all the bees hanging about on another stool close by. I then fed them every day for a fortnight, and then, as they seemed to be doing well, I left them alone; but after six weeks I found them getting very weak, so I opened the hives and found that one had about 200 drones and about 100 workers, and the other about 200 workers and ten drones in it. All the brood had hatched out of the combs, but there was no queen in either hive, although there were two or three queen-cells, and so I lost a valuable stock of bees with an imported queen.—Captain C. A.

[Note.—Artificial swarming is easy, and generally successful, indeed when carefully conducted failure is almost impossible. The error appears to have been in taking three combs from the brood-nest, instead of one only with the queen upon it. Evidently the three central combs contained the major portion of the brood and young bees, but had not the queen upon them, and when placed upon the original stand, and the old stock put upon another, the bees capable of flight left the latter and returned to the former which was in the position of their old home. Thus, the old stock, which contained the queen was comparatively deserted by the bees, and had little brood to hatch to recoup the population, and doubtless they fell a prey to robbers. The swarm on the old stand evidently failed in their endeavour to supply a new and fertile queen, and thus soon dwindled away.—Ed.]

ON A BEE DISORDER SOMETIMES MISTAKEN FOR FOUL BROOD.

Foul brood is a subject possessing much interest and fascination, still, though I have never seen it, I am by no means sure that I wish to do so. I think it well, however, to record an observation which I think explains the circumstance that some authors describe foul brood as a terrible pestilence, and others make light of it. Now I take it as abundantly proved that foul brood is a contagious malady, depending on minute organisms of a fungoid character, which once existing in a hive or apiary is exceedingly difficult to eradicate, and very apt to spread and result in total ruin. Now the disease I have observed presents a superficial resemblance to the descriptions of foul brood, but is wholly wanting in contagious character, fungoid parasitic existence having no share in its production, and my suggestion is that this is the disease that has been observed by those who make light of foul brood, whilst really they have, like myself, had no acquaintance with the true pestilence.

I have been very unfortunate this year in my attempts to Ligurianise my apiary, sheer ill-luck having a fair share in my disappointment. One hive had been established with a young queen, and was thereafter neglected as being all right, but early in August I was dissatisfied with its condition, an examination yielding the following appearances:—A fair supply of honey, a young queen, small, but not notably so, and of apparently good Ligurian strain, very few bees, the majority black, but with a fair sprinkling of recently-hatched Ligurians, which were, however, very small and weak-looking; more drones than bees, both of foreign and native origin, those native to the hive being largely of the small sort, reared in worker cells, very little brood, and what there was scattered about very irregularly, my impression being, taking account especially of the considerable supply of eggs, that the bees were not only unable from their small numbers to raise brood, but unwilling to do so. The remarkable point was the nature of the brood; it consisted of a few drones in drone-cells, rather more drones in worker cells, a few healthy workers, a considerable number of cells that were worker failures, some of these contained recently dead larvæ and pupæ, others that contained shrunken larvæ or pupæ, some of these being in a liquefying state, precisely as described as occurring in foul brood; some queen-cells, one containing a promising-looking larva, others empty, and some sealed containing a dead larva just as the worker-cells contained dead larvæ. There was no fœtor, as described as occurring in foul brood. I came to the conclusion that there was something wrong with the queen, so that whilst she could lay good drone eggs, her worker eggs were in only rare instances capable of developing a worker, but usually died in the process. The bees had obviously arrived at the same conclusion, as they entertained a great excess of drones, and made persistent efforts to raise a fresh queen, but the eggs that would not produce workers except rarely, seemed even more averse to yielding queens. What was the matter I cannot say; the queen was small, but not very unusually so; the nearest guess I can make was that her mate was a small drone reared in a worker cell, of which my apiary contained a good number. Unquestionably she must have been impregnated or she could not have laid worker eggs at all, but there must have been some great insufficiency in the process.

I removed the queen and gave them a good black one, and added more bees, and as the season was now far advanced I fed them. Drones were at once expelled, they have since bred freely, no more decaying brood has appeared, and whilst a little remains, most of that which was there has been cleared out.—T. A. Chapman, *Hereford, Oct.*, 1878.

A NEW DANGER TO THE BEE.

Allow me to repeat my observation of the destruction of the bee by the *Tritonia Uvaria Grandiflora* (the red-hot poker*). I took sixteen bees dead to-day from one plant, and twenty-two were taken from the same plant two days back. Several more were liberated by me from their prison alive, but they seemed either stupefied or exhausted, and scarcely able to fly.

Will some apiarian friend skilled in chemistry examine the nature of the honey secreted by the flower, and so determine whether the same is poisonous or otherwise detrimental? If poisonous, the bees being unable to retreat from the flower is easily accounted for.—J. G. Desborough, 12 *St. Peter's Hill, Stamford.*

LIGURIANS AND THEIR PROGENY.—DO BEES MAKE HONEY?

I had a good sample of honey taken with the Extractor, and four strong swarms from the Italian stock queen I had from you. Two of the stocks are breeding all kinds of colour, and from no yellow bands up to three, and some jet black with one band, and those two are worse than Turks to do anything with, in fact they attacked people on the road, and I had to remove them further away. The other two swarms are beautifully marked with three yellow bands, two broad and one narrow, so I expect they are pure. I read some correspondence in the *B.B.J.* about bees making honey—that is all nonsense, for they only gather it. Let any one extract all the honey and feed on sugar, he will find that although it is sealed over in the cells and answers to make comb of, yet it is still sugar syrup. Besides this Pettigrew idea, if bees made honey it would be all alike, no difference between clover, fruit-blossom, or heather honey. Bee-keepers know this is not the case, so that we will have to be content with the knowledge that honey is a natural secretion, and cannot be manufactured at will by our little favourites.—W. Crisp, *Greatham, West Hartlepool.*

POSITION OF FRAMES IN HIVES, EXCLUDER ZINC, &c.

I am pleased to see that I am not left alone, in that you have followed my idea of having the frames crosswise with entrance. At our Show last year you told me I had got my frames the wrong way (being parallel with entrance-front). Before you saw it I knew you would say so, as your ideas at that time were fixed to the 'back-to-front' system.†

One of your correspondents states, 'he has turned up hundreds and hundreds of straw skeps, and that if the combs were not all perpendicular with the entrance, they were all pointing in that direction.' I am afraid he is rather hasty in coming to this conclusion; although the greater number are so, I have often found them exactly the reverse.

A swarm in a skep would naturally extend from the highest point to the front, where the bees are working in and out, and the cluster being deepest from the back to entrance, is probably the cause of the combs being more often found in that position. I find bees in the walls of houses almost invariably build crosswise to entrance, possibly because, the space being shallow, the cluster is compelled to extend farthest in that direction. Again, in the roofs of houses the entrance is sometimes immediately over the combs, and therefore cannot possibly have anything to do with their position: at other times I have found the combs more than a foot from place of entrance. You are not far wrong in saying that 'making convenience for bees' is 'moonshine:' bees adapt themselves to circumstances, and sometimes build in most awkward positions in their natural state. The position of the entrance should be determined according to the construction of different hives. I believe it has really nothing to do with the convenience of the bees, or the amount of honey produced by them.

I think you were hardly right in declaring that 'the Combination' is the only hive in the world in which swarming can be prevented. If the stock be prosperous, and the bees have raised young princesses, finding that the old queen could not obtain her freedom, might not one of the newly-raised queens (who could probably pass the zinc) be induced to lead off a swarm.* Of course this is supposing the queen-cells were not destroyed in time by the bee-master, who could do the same with any other frame hive.

Confining the drones appears to me to be a mistake, although certainly the hive could be lifted from its floor-board occasionally, and all dead ones cleared away.†

You say 'it is a well-known fact that bees prefer to store their honey at the farthest point from the hive entrance,' or, as you put it, 'at the point least accessible to their enemies;' and you speak of bees between the joists of a bedroom floor, storing their honey in the combs farthest from entrance. They are, by force of circumstances, compelled to do so. In the first place, the swarm will build as near to the entrance as possible, and their first combs, being occupied with brood, they must consequently build farther back when surplus honey has to be stored. But with the frame hive the bee-master can compel‡ his pets to store honey in any part of the hive—

* See *Journal*, Vol. V. p. 121.

† Our ideas are by no means 'fixed' on any subject. Early teaching had its usual effect, and we believed in it as firmly as one believes what is learned at his mother's knee. As regards having '*followed*' our correspondent's idea, we beg to be excused, we thought out a principle for ourselves, and if we had taken a hint of any kind from him, should have been only too pleased to have acknowledged it. The crosswise principle of frames is 'as old as the hills.'—Ed.

* We have never pretended that the excluding zinc will prevent the passage of a diminutive queen, such casualties cannot well be foreseen or prevented, and on p. 98 of *Journal* we pointed out another possibility which cannot be guarded against. Our correspondent evidently has an idea that cutting out the queen-cells will prevent swarming. We wish it would, it would be easy then to control it.—Ed.

† We have not proposed to confine the drones.—Ed.

‡ We wish we knew how to compel bees to do anything. —Ed.

top, bottom, sides, or in the very centre of the brood-nest. This season I placed a couple of empty frames in the middle of a moderately strong stock of hybrids, intending to have them filled with worker comb and brood; but a honey glut set in just after, and on examining the hive a fortnight later, I found them filled with beautiful white honey, sealed from top to bottom, and not a scrap of pollen or brood had ever soiled the combs, and this with brood on either side, and one comb of brood between the two. If bee-keepers who have the time, will only watch their opportunity they can obtain pure honey without queen excluders, and thus do away with their bother and expense.*—Samuel Simmins, *The Apiaries, Crawley, Sussex.*

BEES IN THE 'BLACK COUNTRY' OF SCOTLAND.—LIGURIANS *v.* BLACKS.

Perhaps a few lines from the 'black country' of Scotland may interest some of your readers. 1878 has been the best season for bees we have had for many years. There were no plane or lime-tree blossoms, but the clover and other flowers more than made up the want; and when at the heather, which is our latest honey-flower, there was hardly a day lost, some of the hives having doubled themselves in weight. A swarm which was put into a 20 in. skep about the 1st of July, weighed 124 lbs. when I lifted it from the heather on the 14th of September; and others that I know were still heavier. Extracted honey is selling here at 1*s.* 2*d.* per lb., and comb honey in supers, 1*s.* 6*d.* to 2*s.*

By-the-by, will you accept a plea from the poor despised black bee? Seeing the great accounts of the wonderful gathering powers and industry of the Ligurian or Italian Alp bees, I determined to give them a trial, so I procured a stock in the autumn of 1876; but as the following year was the worst for honey we ever saw, neither blacks nor Italians gathered as much as would keep them through the winter. To make my experiment more complete, I added another Italian queen to my stocks, making them two of each kind. Mark the result this year, the conditions being as near equal as possible. The two black stocks produced 175 lbs. of extracted honey and supers, and the two Ligurians 45 lbs.; but I rather doubt if I have been supplied with Ligurians from the 'upper ten thousand' in bee society, not used to work, and not meaning to do so, so long as they could get the black drudges to work for them. They loitered about the doors of the hives and wrought none until all the blacks died out, then, and not till then, they commenced to work a little; but I give them great credit for their fighting and thieving propensities, any unguarded corner or weak hive was sure to get a visit from them. As far as I can see they do not possess the characteristics of the modern Italians, but of their ancestors, the Romans; had they done so Austria could not have held the northern portion of Italy so long in subjection as she did. However, I am not going to part with them yet; perhaps they require to be acclimatised, but if there is no improvement next year, there will be two queens to be had very cheap here. Would some of your readers give us their experience?—A Bee-keeper of Wishaw, Lanarkshire.

* There is a good deal of truth in this last remark, but the bee-keeping public have a good deal of faith in an excluding medium, hence we have tried to produce the most perfect.—Ed.

BEE-KEEPING IN IRELAND.

I am so much indebted to your excellent advice on apiarian matters, and to Mr. Raitt's comb-foundation, of which I have successfully used over 150 sheets, that I feel I ought to communicate to you the extraordinary results which have this season followed the being guided by the one and the use of the other in my apiary. Up to the 20th of June my notes indicate nothing done by bees—'barely living,' 'still requiring stimulating feeding'—then came a glut of honey, with almost tropical weather. All my stocks were crowded with bees, but almost destitute of stores, and up to that time I expected nothing but loss from this season. However, my pets soon needed new storage room, and I supplied ten Langstroth boxes with supers, and put four strong swarms into four other Langstroth boxes, and within the six weeks of clover and lime bloom, these fourteen stocks gave me, with Mr. Raitt's help, the following results of super honey:—Sold and paid for—the best test of reality—748 lbs.; present, and retained for home use, 72 lbs.; sixty-seven unfinished sections 10 in. by 5 in. and 8 in. by 5 in. three-quarters full, half sealed, about 100 lbs.; total, 920 lbs. There was no increase after the first week of August. Can any one after this question the value of comb foundation as an auxiliary? Within eight days after being driven my new stocks had their frames filled, and in a fortnight called for supers, which they entered at once. Of course I have had a large return of run honey, but I confine this communication to the super produce of my apiary.—George A. Procter, *Tullamelan Rectory, Clonmel, Ireland, Oct. 21st*, 1878.

BEE-KEEPING IN SUSSEX.

To the Editor of the Times.

Sir,—Believing it may be of interest to certain of your numerous apiarian readers to know the results of the past honey season in this part of the kingdom, I venture to send you a line, trusting to your courtesy to give it insertion. As was the case everywhere this spring, the long spell of wet, blusterous weather in May and June considerably retarded the labour of honey-gathering, and it was not till the 20th of the latter month that the honey harvest commenced in earnest. After little more than a week of tropical weather from that date, four of my heaviest supers yielded a total of 122 lbs. of honey on the combs being emptied by the honey-extractor, which latter article, I may add, *en passant*, is a most indispensable adjunct to an apiary where bees are kept for profit, as the honey is taken without destroying the more valuable combs, which at the close of the season are put by for another year. All the supers in use in my apiary are furnished with frames of comb thus saved, from 1½ in. to 2 in. in thickness. Three stocks filled two supers, and my strongest hive filled three with honey. The total amount of honey taken from 12 stocks is 372 lbs., or an average of 31 lbs. per hive, which in this particular district

is barely half the usual average. With the generality of amateur bee-keepers it is not so well understood as it should be that bees will store from three to four times as much honey when the supers are already provided with combs placed on the hives in spring.

Looking at it in the light of £. *s. d.*, an extractor must be considered a sound investment. It is asserted, on excellent authority, that bees consume 20 lbs. of honey in making 1 lb. of comb—thus involving a loss to the producer of 18*s.* on every pound of wax sent into the market. Of this fact our Transatlantic brethren, wiser in their generation than the majority of bee-keepers in this country, are well aware. In the great American apiaries, especially in the West, the extractor takes a prominent place. There, surrounded by vast flowery prairies, yielding honey in a profusion unknown elsewhere, the average per stock is simply enormous. It has been lately mentioned that upwards of 2 cwt. has been taken from a set of supers, the produce of one stock of bees on the prairies in a single season.—I am, Sir, yours obediently,

ALFRED RUSBRIDGE.

The Apiary, Sidlesham, Chichester, Oct. 8.

THE HONEY EXTRACTOR.

To the Editor of the Times.

SIR,—Will you kindly allow me space to add a few supplementary lines to my communication of the 11th inst.? As some little misconception appears to exist in certain quarters as to what the honey extractor really is, and respecting what it will and will not accomplish, perhaps you will permit me to add a few additional particulars. It would seem that in remote districts many apiarians have no very clear idea of the advantages of centrifugal force when applied to honeycomb, or how the machine is constructed; and for their information it may be briefly stated that externally it is composed of an upright metal can or cylinder 24 in. in height by 17 in. in diameter. Internally it is fitted with a square cage, two sides of which are of woven wire-cloth of three-eighths inch mesh, revolving round a central shaft which passes through a cross-bar on top and works in a thimble at the bottom. Cog-wheel gearing is attached to the top of the shaft, the larger, or driving wheel, being three times the circumference of the lesser to insure speed. The mode of operating is as follows:—Two combs with the lids of the cells previously uncapped are placed flat against the sides of the cage at opposite extremities; a few revolutions force every drop of honey from the outer cells of the combs through the wire-cloth sides; the combs are then reversed and the process repeated. A treacle-valve at bottom allows the contents to be drawn off at pleasure. By this simple method only the pure nectar is extracted, uncontaminated by the slightest admixture of bee-bread or pollen. In the construction of the machine metal is much to be preferred to wood, as it is so much easier to cleanse after use, besides being far more durable. The honour of the invention is, I believe, due to Hruschka, a native of Germany, but to the original machine numerous improvements have been subsequently added. Several inquirers wish to know if new honeycombs of two or more inches in thickness can be emptied by centrifugal force. To which I reply in the affirmative, having emptied new combs of nearly 3 in. in thickness, weighing 8 lbs. each, during the past season without the slightest injury. Of course, it will be understood that when manipulating with combs of the first year of this weight and thickness some little experience and care are needed in regulating the speed, or the very comb itself will by reason of its extreme fragility be driven through the meshes of the cage while revolving at a high rate of speed. On the other hand, if the honey is allowed to remain in the combs until late in the autumn it thickens and crystallizes from the lower temperature, and then it is most difficult to extract. Heather honey cannot be so readily emptied by the extractor as clover honey, owing to its greater consistency.

With the introduction of bar-frame hives, due in large measure to the indefatigable labours of the late Mr. Woodbury, a new and brighter era commenced in bee culture. Where the combs are built within separate frames it gives the bee-master complete control over his stocks at all times; this could not be obtained under the old system of fixed combs. Leaving sentiment out of the question, it was most decidedly a step in the right direction when the few simple rules were known to our fathers by which the owner could obtain the surplus super honey annually from his stocks, still leaving them intact for the following season; but when to this are added the ready facilities afforded by the extractor for getting the honey without destroying the combs, the gains are vastly increased, and the yearly profits of the apiary augmented fourfold.—I am, Sir, yours obediently, ARTHUR RUSBRIDGE.

The Apiary, Sidlesham, Chichester, Oct. 14.

SINGULAR CAPRICE OF A QUEEN.

A very strange incident happened the other day. In my workshop on a table I had left a feeding-bottle with a very small portion of syrup at the the bottom. On entering my shop I noticed two bees in it, and on examining them I found one was a fine queen; she was bedaubed with syrup, but quite lively. I watched, and not knowing from what hive she had escaped (there is no lack of honey in any of my hives, too much rather, I fear), I tried to find out by placing her at the mouth of several of the hives, but she was not known to them. I thought likely to have lost her, and at last I lost her; she was shoved off the board of the hive nearest to where I found her, and now I suppose I must overhaul my hives to discover where a queen is wanting—knock two hives into one, and take one queen to supply her place.—J. LAWSON SISSON.

FOREIGN BOGEYS AT LOCAL SHOWS.

I am rather surprised that none of the so-called 'foreigners' have noticed your editorial remarks in the September number of the *Journal*. With regard to your statements in the October number, that 'in no case has there been a relapse,' I am sorry to say that there has been no show this year at Wolverhampton. Could this have the remotest connexion with the fact that last year, as you observed, 'the local exhibitors were beaten out of the field by foreigners?'—J. W. N.

[We beg Wolverhampton's pardon for having omitted to notice her conspicuous absence. We feel that a great responsibility rests '*somewhere*.' Who, in spite of private jealousies, dare 'beard' the prevailing 'heresy?'—ED.]

LIGURIAN BREEDING AND DEVELOPMENT.

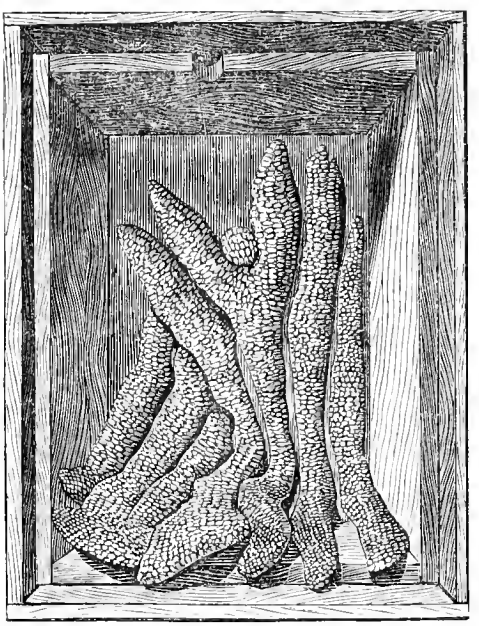
I have read most of the books that have been published on bees, and in them they say it takes twenty-one days for a worker bee to be hatched, and then the young are a few days old before they leave the hive for their first fly. If this be so how do you account for the following? In May last I saw at a friend's one of Carr's bar-frame hives full of beautiful clean comb, and was so pleased with it that I bought it, and then bought a swarm of Ligurian bees, and put them into it, and on the

nineteenth day after there were scores of young Ligurians outside the hive taking their first fly. I do not think a young bee could fly the day it was hatched, but only allowing one day after hatching, the young must have been only eighteen days. Again, I had a black stock, and bought from Mr. Pettitt a Ligurian queen, caged her one day, and twenty days after her release young bees were flying. Are bee books wrong in giving twenty-one days and several more before flying, or do they only refer to black bees? if so this may account for the rapid increase in Ligurian bees.—T. G., *Nantwich.*

[Twenty-one days is the time named as the average occupied in the development of a bee from the moment the egg is deposited. 'Langstroth,' in his invaluable book, p. 44 and following, quotes Dr. Bevan as to the times respectively occupied in the changes from the egg to the perfect insect, each of which is liable to be lengthened or shortened by changes of temperature of the hive. Averages cannot be subject to individual challenge.—Ed.]

FANTASTIC COMBS.

At last I send you a photograph of my fantastic combs, built outside a hive, in the outer box with which it was covered. The fillet round the box helped to heighten it so as to give ventilation all over the hive itself, which contains about 2160 cubic inches of space. The facts are simple. About four years ago I put a swarm into a box I had close



by, an oblong box (somewhat like the cheap Standards), and I find the combs, seven in number, most beautifully straight (Mem. for your new Combination), running parallel to the entrance front and reaching nearly to the floor-board, black and clean. The hive is 12 inches deep, and the outer box 15 inches leaving a space of 3 inches above the hive and being much longer than the hive, space also at the back end which will account for the foreshortening of the combs in the photograph and for their boomerang shape. I have had some grand swarms from the inner box, but never looked at it until Sept. 9th, and then found these singular combs. In removing the outer box, the combs were slightly damaged, but I have repaired them, and fixed most of the broken pieces in their places with hair-pins; but one small portion is lost. You will see that the length of these 'boomerangs' is three feet nine inches, or thereabouts. No sketch can show how complicated they are, and how ingeniously they are attached to the box, and sometimes to each other. Very little was injured by my taking the box off the hive, I did it carefully, though not knowing what was inside. The comb is not old, or black, but a portion of it is brown.—J. Lawson Sisson, *Edingthorpe Rectory, near Walsham.*

SKEPS AND BAR-FRAME HIVES.

(*Continued from page* 17.)

The amount of drone comb built by the bees as a rule, and consequently during the honey season the host of drones produced, militates very much against large results being obtained from hives with fixed combs. A large number of drones and a large harvest of honey are incompatible in a hive of any description, simply because those lazy, gormandising fellows require a large amount of honey and the bees' energies are taxed to collect the quantity necessary for their daily food, and as a matter of course the amount stored in excess of their wants is small even in a good season; and this fact has been known to bee-keepers for more than 2000 years, for in Aristotle's time they used traps for the exclusion and destruction of the drones. The bell-shaped or round-topped straw skep is met with everywhere, and it is not easy to understand how for ages bees have been kept in such an unsuitable habitation. There is so little room in the round top for storing honey, either for the use of the owner or for winter provision for its inmates, and the wideness at the bottom is so favourable for building drone comb, and in the swarming season drones are so numerous, that we often hear the proprietor of such skeps remark after a second swarm has come off, 'that there are only drones left in the stock.' When the weather is favourable and the flow of honey abundant, after a swarm is hived, the bees in their eagerness to collect as much as possible, build a good deal of drone comb to store the honey in. If a hive of this description is kept for stock for another season, many of those cells are emptied during the winter and spring, the queen lays in them, drones are out early in May, its owner is jubilant, he expects an early swarm, day by day passes on, and the swarm comes not. Then a few days of cold, wet weather, perhaps about the beginning of June, and one of those mornings he finds the bees pitching out the drones, dragging the innocents out of their cradles, and tossing them over the flight-board. The bees, in place of being ready to swarm, are living from hand to mouth, and probably are daily decreasing in numbers as the drones increase. The instinct of self-preservation has induced the bees in this case to eject so summarily all their useless inmates, just the self-same instinct that influenced them the previous season to build the drone comb during the flush of honey. The old saw, 'Early drones, early swarms,' is like many of those ancient maxims as often wrong as they are right.

Applied to the stock just described the early appearance of the drones, instead of indicating an early swarm, only proved that there was drone-comb in parts of the skep, perhaps in the centre of the brood nest where worker comb only ought to be. If the owner had examined and considered it at the end of the first season he should have broken up the stock and joined the bees

to some of his other colonies as being the most profitable way and the only way conducive to his own interest, for I repeat that large results in honey can never be obtained from a hive in this state that breeds and rears drones by the thousand.

If we put a swarm under the same conditions in a bar-frame hive the self-same results will follow, and it is quite possible that from a third to a half of all the frames are built with drone and honey-comb. In this case, however, everything is under control, and at the end of the honey season, or at any time, the frames of drone-comb can be removed and frames of worker-comb inserted in their place.

A couple of square inches or so of drone-comb left in one or two of the outside frames is amply sufficient. The principal function of the drone is to impregnate the young queens, and a few square inches of comb in every hive will produce as many drones in the swarming season as will leave no chance of any young queen remaining unfertilised. The hive being now all worker-comb, at the swarming time next season there is a teeming population ready to take full advantage of the flow of honey when it comes; and for every pound of honey that the above-mentioned skep will store the bar-frame will under this altered circumstance at least store ten pounds.

This fact alone, which any one who chooses can prove for himself, more than doubles the advantages of the moveable over the fixed-comb principle.

Although the bar-frame had no other superiority over the skep than this single one, everybody who keeps bees for profit would be amply repaid in one season for the greater original outlay.

A straw skep of suitable size and shape, with fine straight sheets of worker comb in it, and only a bit or two of drone comb at the bottom, or outside, will be always a source of both pleasure and profit to its owner, and will give good results in surplus honey or strong early swarms, but for every one skep of this sort there are ten —ay, twenty to be got with excess of drone-comb.

The union of stocks in bar-frames is easy, and do not offer the least danger. All that is to do is to transfer the brood-comb and bees from the one hive to the other, and sprinkling them with thin syrup scented with essence of peppermint, and removing the queen that is oldest and least valuable.

When the bees of two skeps are to be joined the best and safest plan is to drive both stocks into empty skeps, taking out the queen that is of least value, sprinkling the two lots of bees, and throwing them out and mixing them on a sheet in front of the hive that is to be kept, into which they will all run as fast as their legs can carry them; and by the time they have cleaned each other of the syrup, and got into position in the hive, the one will not know 't'other from which,' and they will live peaceably together ever afterwards.

To enable us to judge of the amount of stores for winter in a skep, the only method is to weigh it, and after deducting the weight of skep, floor-board, and supposed weight of bees, combs, pollen, and brood, we have the approximate quantity of honey. If there is too much honey, we must either sacrifice the stock by breaking it up and joining the bees to another stock, or run the risk of losing it altogether during the winter; for honey-comb is so cold and the thickness of it keeps the bees so far apart in the cluster that they are not able to keep up the temperature necessary for their well-being. Even suppose a stock of this sort comes through the winter in spring, it generally gets weak and few in numbers for the simple reason that the queen has not empty cells in which to deposit her eggs, and there are more bees dying off from labour and old age than is produced. On the other hand, if we find in autumn that a skep is deficient in stores, it can be fed with syrup made of sugar and water in the proportion of 5 lbs. of best loaf sugar thoroughly dissolved by boiling five minutes in two imperial pints of water, and adding a pinch of salt and a table-spoonful of vinegar. The common system of feeding the ordinary skep below by some arrangement on the floor-board, is open to grave objections at all times, and particularly at this season, because it exposes the hive to the risk of attracting robber bees from the neighbouring hives, and consequently the danger of losing the stock; for a few strong colonies very soon overpower and rob out all the weak stocks in their vicinity. When bees begin fighting and robbing, it is almost impossible to put a stop to it till most or all of the weak colonies are exterminated.

This fighting and robbing are the cause of much dissension and bitter feeling amongst neighbouring bee-keepers; and very often they put out their vengeance and spite on the poor bees, who are really not robbers by nature, but have become so almost always by the ignorance, stupidity, and carelessness of their owners. 'Prevention is better than cure' in fighting and robbing as well as in all other ills, and the effectual means of prevention is '*to keep none but strong stocks.*'

In bar-frame hives we can easily see in a very short time how each and all of our colonies stand at the end of the season in regard to amount of honey, pollen, brood, &c. With the moveable comb principle we can examine and review the exact state of the whole hive. If there is too much honey in a stock, a frame or two or more can be lifted out and exchanged for empty combs from a stock that has not sufficient stores, or the honey can be slung out by the extractor and converted into present gains and the empty combs returned to the bees for clustering in all winter.

We are thus enabled to equalise all our stocks, and keep them all strong, thereby reducing the danger of fighting and robbing to a minimum. If all the stocks are deficient in winter stores, they can be fed with the bottle inverted on the top in small or large quantities as desired, without inciting any tendency to plunder. During this examination, if we find the queen defective or decrepit, or if we wish to introduce a young Ligurian queen in her place, the old queen can be quietly removed from the comb and her successor caged with one or two bees for forty-eight hours. At the end of that time, if the bees are well disposed towards the alien, they will be found thickly clustered round the cage and over all the comb. Remove the cage gently and close up the hive with the certainty of all being well. If the comb is thin with bees and only a few round the cage, they mean mischief if the queen is released, and it will be safer to close the hive for another twenty-four hours, and in the interval give them a bottle of syrup. On the twentieth day after the queen is released, if she is young her progeny on examination may be seen emerging from their cells.

A strange queen can also be introduced into a skep by driving out the bees into an empty skep stirring about and searching the dense living mass till the old queen is caught, then returning the bees and confining the young queen with a few of her own bees in a close cage and pushing it up between the combs, or if there is a hole in the crown the cage can be pushed down through it by by slicing a shaving off the side of one of the honey-combs to make room for it. At the end of two days her majesty can be set at liberty in the hive, but we can never be quite certain of success till we see the young bees flying out in about five weeks.

The main object for which most people keep bees is profit, and the success of any system or principle ought to be judged by positive results. The old-fashioned bee-keeper with his round-topped straw skep, after consigning his bees to the sulphur pit and squeezing all their combs, reaped a harvest from each hive of from 10 to 20 lbs. of a compound consisting of bits of bruised comb, bee-bread, smashed bees and grubs, and often the disgusting remains of foul brood flavoured with brimstone. This mixture he was pleased to call honey, but it is no

more like genuine honey than the dirty scrapings of a treacle cask are like pure loaf-sugar.

The modern straw skep and more humane plan of working it realises from 30 to 70 lbs. of strained honey. An exhibitor at the late Alexandra Palace Show had upwards of 100 lbs. of super honey from a single colony of bees in a straw skep.

With bar-frame hives, whether in supers or extracted, the honey is in a more genuine form and the results vary from 40 to 160 lbs. of super honey and 80 to 100 lbs. are getting quite common.

Our Yankee friends say that we are a quarter of a century behind them in bee matters, and certainly the wonderful results they realise seem to justify the allegation. Their fine climate and vast resources account a good deal for their extra success.

Almost the whole of the bee-keepers of America have adopted the moveable comb principle, and all their honey is either extracted or got up in sections and small fancy boxes, and their average yield is about 100 lbs. from each stock, while 300 lbs., 400 lbs., 500 lbs., and 600 lbs. of honey have been got from a single colony.

(*To be continued.*)

Echoes from the Hives.

Letham House, Arbroath, N.B. 19th Sept., 1878.—'We have had a course of most successful shows in connexion with the East of Scotland Bee-keepers' Society this year, and I have no doubt but it will give a fresh impulse to bee-keeping. You will notice from the Dundee prize list that your observatory hive took first prize, and five competitors entered. It is the hive I got from you last year—the first of the sort ever made. I was also first at Arbroath, but there was no competition. You will see that we have had a glorious bee season here this year. I have been successful beyond my most sanguine expectations. My largest harvest was 113½ lbs. in seventy sections from one hive, and other two of my stocks exceeded 100 lbs. Good, is it not?'—John Stewart.

Wasps.—*Taunton, Oct. 7th.*—'We have had a wretched season in this county: swarms late, and supers uncommonly scarce. Wasps are more plentiful than they have been for years, and are attacking impoverished hives with a vengeance.'—C. L.

[Note.—A great deal of trouble would be prevented if bee-keepers would search out and destroy wasps' nests now. A little (say half a gill) of turpentine poured into the entrance of a nest will paralyse those at home, and those arriving from their foraging excursion are not aggressive, being already laden. A few minutes after giving them the 'turps' the nest may be dug out in broad daylight with impunity. It is the sentinels at home that are dangerous, and, if they be paralysed, the fort can be easily taken and destroyed.—Ed.]

Kelvedon, Essex, Oct. 8th, 1878.—'The opening of our season was very promising, the stocks being forward and occupying the supers and nadirs at a very early date. I promised myself a magnificent harvest; but the cool, wet weather the latter part of May and early part of June (just the height of our honey season) ruined all our bright prospects; and I am afraid this year will prove (in this district) a very poor one. I intend taking all my nadirs away this week. Of course, they would have been heavier two months ago. I do not grudge what the bees have eaten. I hope I shall have a few decent nadirs. I shall have to depend almost entirely on them this year, as the bees did very little in supers or glasses. I have one very fine glass of 24 lbs. of good quality.'—W. T. B.

'Off seven stocks and their progeny (two swarms) I have had upwards of 700 lbs. of honeycomb, and all of the "Lanarkshire hive," excepting 84 lbs. which I had of a swarm put into a skep 16 inches (mention it not in Gath!); but even that comes far short of what I had of the parent stock in "Lanarkshire," which turned the balance at 163 lbs. of pure comb and 28 lbs. odds of run honey—in all upwards of 191 lbs.'—J. W.

'Thanks for your comprehensive note. You will be pleased to hear that your hive—*i.e.*, the winter box—is stocked with two lots of driven bees (a large lot), and they are quickly filling the frames, having worked out and extended in depth the foundation I gave them (wax dabbed with brush on plaster cast, *à la* Cheshire). I give you all credit for your admirable ideas. Thanks for the hair-cloth quilt; they are taking syrup through it freely. I have cut up ticking and "shoddy" flannel for all my hives, and put them on, one tick and three flannels to each hive. All my stocks, fifteen in number, are very fine and strong. Commencing with seven, I now have fifteen without purchase, and have slung ten gallons from side frames (four from month of the hives), and taken about 150 lbs. super honey of super-excellent quality. Not a single hitch in any manipulation; all has gone smoothly and pleasantly; and I never enjoyed my bees more than this season—the thirty-first, *seriatim*. Interest increases rapidly. It is now a delightful science. Many of my driving operations have not taken more than seven or eight minutes before the driven bees were on their stand and the hive in the cottager's hands. The more I see of judges' awards *in small places* the more I am certain that they are inclined to lean towards exhibitors who are known to them. It almost seems natural, without any intention of actual favouritism. Your last issue of the *Journal* is most interesting. The apertures in the zinc appeared to me larger than the others; but, as you say, on examination they are smaller. I remarked to some bee friends that it was singular that Mr. Abbott had arranged the frames *across* the hive. I accept your explanation as quite satisfactory.'—Exeter.

Bees in London.—'I send the price of the feeders as quoted for post, and not having solemnly weighed them I don't know how much it is for stamps; but you can keep the difference towards what I owe you, for interest on shamefully long credit. Or, if this suggestion offend you—though I don't see why it should—you can easily add it to the Princess Alice Fund in your neighbourhood, as a monetary 'waif or stray.' I do not know whether you will look upon me as an absolute lunatic to be avoided with pitying dread, or as an enthusiastic apiarian to be followed with sympathetic interest, when I say that I am about to keep bees in *this* place. There is a top room in this house which has for years been entirely unused, and after concert with my next-door neighbour (who has some bees at his country house), and very earnest counsel with our housekeeper here, I shall on Tuesday night bring a stock in a bar-frame hive, and establish it in this room, with an entrance-way through the window-sash. I can't say that I expect the bees to fill a very large super, but I am going to see if they can feed themselves. As possibly you are not acquainted with this suspicious locality—all amongst the lawyers I mean, of course—I will just say that I am distant, in a bee line, from the divers possible foraging grounds as follows:—Charing Cross Gardens and Embankment, 1 mile; Regent's Park (Botanical Gardens), 1½; St. James's Park, 1½; Newington Park, 2⅝; Victoria Park, 3; Finsbury Park, 3½; Hampstead Heath, 3⅞. I think these distances are about right, and they are measured to the nearest points of these places. Of the London squares and the ordinary suburban gardens I have, of course, taken no account. The hive will be *about* 50 ft. from the ground; but if I were to put it in the garden the bees would have to rise some 70 ft. before they could

clear the square block of buildings, of which this street forms one side. The aspect is due north. The bees that were seen on the patch of clover near Fetter Lane no doubt belonged to the gentleman in the Strand who lately exhibited, and who is considerably less than half-a-mile from the Embankment Gardens, about seven-eighths from St. James's Park (which, you know, leads right away, without any definite break, all over the Green Park, Hyde Park, and Kensington Gardens), and about two and a half miles from Battersea Park, which, I am told, is really a first-rate one.—W. H. H.

[We have no doubt but that the bees can be kept in London, if profit is not the *great* consideration. If they were like wasps they would be able to find their way *out* of grocers' shops as easily as they find their way into them; but, notwithstanding their general cleverness, glazed sashes are traps which bees are not gifted to avoid, and hence they beat themselves against the panes until they die of exhaustion. In towns and cities the grocers', publicans', and bakers' shops play sad havoc with bees.—Ed.]

Abbott's Combination Hive.—'I have been reading with particular interest your description of your new idea—the Combination Hive. In a summer like the past one, when bees were so much given to swarming, any plan that will assist to check swarming must be welcomed with delight by all those who work their bees on the non-swarming principle, and in the short honey season we get in this country, it is the only method to get large returns of honey. A neighbour of mine here has a bar-frame hive with the frames at right angles to the door. He has had it for two years, and I have often assisted him when examining it, and have seen the condition of it often. He has had a large amount of surplus honey in supers off it this year. Would you like a description of the condition of it at present? If so I shall be glad to give you a correct description, for I would call on my neighbour and see it.'—Arbroath.

France.—*The New Hive.*—'I was much pleased to see your success at the Kensington Show, and also interested in the account of the new hive. I expect you are on a good track there.'

An Old Hive.—'I some day mean to try an experiment with letting bees build into a set of chimney-pots, put horizontally behind each other, like the old Egyptian hive. It would not be scientific, but I expect one might make a lot of honey very cheaply in a good honey country that way. I don't see why one might not take the hind pots off and cut the combs out, and put them in again after extracting, to be refilled. What I mean is, I would have sections of drain-pipe (or chimney-pots if you like), stuck on one behind the other, each long enough to hold about four combs. I think it might be possible to put a line of wax as a guide for each comb, for you could work from each end, which would be open, so you would have a mixture of fixism and mobilism, but a very cheap and I should think warm hive.'

The Little Wonder Extractor.—'I have been using the Little Wonder lately, and I am very much pleased with it. It works first-rate certainly; it is not fatiguing either to work as I thought it might be. I have been thinking it would be a good plan to have two cages, one could then lay the combs in the second cage after extracting one side without lifting them out of the first cage, just by simply turning it over, and so avoid danger of breaking when the combs are tender.'—[This has already been done.—Ed.]

French Apiculture.—'I think you were much more just in your appreciation of M. Hamet than "an English Bar-framist Resident in France." If he really read M. Hamet's *Journal* he would have seen his account of your hives in the July number, in which he did anything but pooh-pooh the bar-frame principle, and said your exhibit was far superior to anything in the French show. It is not the way to convert people by sneering at them, and if Hamet is guilty your correspondent has caught the contagion. This is, alas! too much the habit in France in politics and religion, and it is very catching. But it is the greatest enemy to breadth of view and real progress. Hamet's journal is a well-conducted paper.'

Mobilism v. Fixism in France.—'I know some first-class mobilists myself in Alsace. It would be hard to find a better bee-master than M. Schmidt of Barr, but he does not sneer at the old and venerated Abbé Collin: for instance, he says:—"M. Collin has kept bees for over half a century, and he can divine what goes on in a hive without seeing it; but for us poor people who require to see in order to know, the bar-frame system is absolutely necessary. That is why we cannot approve of the old skeps that he loves."*—P.

Welshpool.—'I have examined your bar-frame Standard hive bought last year, and it is a perfect specimen of honey making. Every bar is full to the top of most beautiful honey, and it is quite a show. The swarm was only put in early in June. One good result is that those who have seen it will not kill their bees in future.'—H.

Dorchester.—'I have taken the hint you gave me at Dorchester as to the "Combination" hive, and have altered my hives to that plan, which I think a very good one and one likely to prove a great success, as, of course, it is applicable to hives with any size frames.'—N.

A Beginner.—'At present I am much bewildered with the variety of opinions as I am only just beginning, as a bee-keeper. Your catalogue had a soothing effect, as it seemed to me that bee-keeping could be arrived at by following out your system. Since then I have had a dose of "Pettigrew," a 3*s.* 6*d.* book, which has quite upset me, and at present I am more bewildered than ever.'—G. P. T.

Queries and Replies.

Query No. 279.—Will you please answer me in your next whether drones should be allowed to exist now, as I have a this year's swarm in Neighbour's Improved Cottage Hive full of comb and very strong. All the cells near the windows are full of honey. My old stocks killed theirs off the first week in July; I cannot see any in my other swarms.'—T. Coomber, *Rochester, Sept. 30th*, 1878.

Reply to Query No. 279.—The presence of drones at this late date indicates that the stock is queenless; from what cause it is not easy to say. Perhaps the swarm, being in so small a hive, threw off a virgin swarm, and then failed to raise a queen for itself. Or the queen might have died naturally—their time must come some day—and the bees failed to find a successor. We would drive out the bees, and search for the facts; and if queenless, as we surmise, would unite the bees with others in the most convenient way.—Ed.

Query No. 280.—If you could answer the questions below you would greatly oblige.

1. Having transferred late some of the frames in my hives, which, though seemingly full of honey, are [not sealed. Will they do any harm to the hive?

2. How many frames of honey (in a Standard hive) ought to be sufficient for the winter?

3. Is it too late to feed weak hives?

4. Combination Hive.—In regard to the Combination Hive, I may say that all my hives being too long for my bee-houses, I have placed them all sideways, and the bees seem to make no objection, the combs are straight,

* We commend Mr. Schmidt's observations to the notice of the English school of Fixism.

as when placed with frames from back to front.—W. Llewellyn Oliver, *Westbury, Shrewsbury.*

Reply to Query No. 280.—1. The unsealed honey-combs will do no harm, provided there are plenty of bees in the hive to keep up the temperature and prevent the honey becoming sour. They will probably have sealed it ere this.

2. Four frames of honey and pollen, with the scattered reserves in the nesting combs, will be ample.

3. 'It is never too late to mend,' but in cases of neglect to so late a date, it may be better to use weak stocks, as women do worsted, for repairs or knitting together.

4. Your remarks on the Combination Hive are quite in accordance with our experience, and we hope will help to reassure those who are prepared to 'faint' at the slightest innovation. We have been terribly scolded for having 'changed our mind' (so called), whereas, in reality, our mind (*i. e.*, our perception) has, in this regard, changed us. We do not mind the shafts which come from the shallows, they are spent before they reach us, but we could not bear to be handed down to posterity as what Josh Billings would call an 'obstinit old phool.'—Ed.

Query No. 281.—The swarm you sent me has done very well, filling every frame full of comb and gathering a good deal of honey in the combs, but doing nothing in the supers but build a little bit of comb. I could have had a fair quantity of honey if I had had an extractor, but being without had to cut out the comb, which I know you would condemn, but having been laughed at for keeping bees here in the Black Country, I was anxious to show that honey could be got. Is it a common thing for swarms to breed *drones* the first year? that you sent has done so. Do they ever send off a swarm the same season they come out? if there are drones why not queens? but I see no signs of queen-cells. Will your Little Wonder at 15*s.* take the Standard frame? I saw one at Wolverhampton last year, but there seemed a difficulty to get the frame in; it is an important item. An answer to above questions through the *Journal* will greatly oblige.—C. Brown, *Dudley.*

Reply to Query No. 281.—In good seaons, it is common for drones to be reared by swarms, not so much with a view to swarming, but because, during a temporary honey-glut the bees build drone (or store) cells, which, the queen having occupied with eggs, yield drones only. Swarms of the first year (called virgin swarms) are not uncommon, but their issuing is often a calamity which ruins the whole of the bees implicated. The Little Wonder at 15*s.* takes frames 17 in. (top rail) by $8\frac{3}{4}$ deep. The larger size at 17*s.* will take frames 20 by 12, or anything less.—Ed.

Query No. 282.—Please say why the Combination Hive is to be $10\frac{1}{4}$ deep when the Standard is only 9 inches; also why you do away with the moveable ends; and give the price per foot of queen excluder. Your attention to the above will oblige.—J. Baker, *Darlington.*

Reply to Query No. 282.—The Standard and the Combination Standard are both of the same depth, the frames being of similar size. Hives on the 'Combination' principle can, however, be made of any required size. The moveable 'ends' are not done away with, but take the form of dummies which are all that are required when there is plenty of space available at the back of the hive as is contemplated. Excluder zinc is 1*s.* per foot, super; by the sheet, 8ft. by 3, it would be much cheaper.—Ed.

Bee Stings.—When placed under a microscope the sting of a bee presents a polish of dazzling beauty, but when placed on the end of a man's nose it takes the semblance of a rat-tail file dipped in vitriol, bringing out words as rough as a grindstone.—*Cincinnati Breakfast Table.*

Sad Ending of a Bee-keeper's Career.—On Friday the 18th ult., Mr. James Cochar, of Fall Side, Drumlithie, Kincardineshire, a retired shipbuilder of Montrose, and a bee-keeper withal, while proceeding by means of a ladder to remove some honey which errant bees had stored in his mansion-house, fell, through the breaking of a 'rung,' to the ground, and sustained injuries of which he died on the following day. He was sixty-seven years of age, and a large circle mourn his loss.

NOTICES TO CORRESPONDENTS & INQUIRERS.

W. H. Bentley, *California.*—We can give you no useful information on the subject of your inquiry, but have published your letter. Letters from distant friends are not any trouble to us, and we cheerfully welcome them. The *British Bee Journal* can be had direct from here for 6*s.* 6*d.* per annum.

J. W. R., *Cockermouth.*—Feeding through two holes is ample for stimulating purposes; but it is doubtful if it is not too late to cause breeding to an appreciable extent. What a pity it is that the thing has been so long delayed!

Ivy Road, *Hounslow.*—It is not too late to join stocks that are too weak to stand by themselves. They ought to be gradually brought together, both lots driven out, sprinkled with scented syrup, and mixed together in an otherwise empty hive. When well incorporated, let them run into one of the 'combed' hives, and preserve the other for future use.

Almond Bank.—The patches of sealed and unsealed brood cells with the 'matter stuff' in them is strongly indicative of 'foul brood,' and instead of advising the giving of a queen, we would recommend the destruction of the combs (saving and boiling the honey, of course,) three days' quarantine for the bees and then uniting them with another stock. If there is any fear of the bees dispersing through having no queen, give them a small bit of brood to cling to and let them amuse themselves by trying to raise a queen. Feed them in the meantime with 'salicylized' syrup.

Malvern Link.—Pray do not on any account put 'waterproof stuff' over the hives; the quilt may be surmounted by a rug or mat, but there must be play of air above it and the roof. The cheap hives would be warmer, and perhaps better, if a few folds of paper or other heat-retaining material were wrapped round their walls, the outside coat being painted. Old newspapers will answer the purpose well, folded to the correct width, pasted together, and afterwards painted, they will be found a most effectual preservative. To keep down the ants try a coat of neat's-foot oil round the legs of the stand or procure some old preserved-meat tins, set the legs of the stand in them, and pour in a little of the oil. Water would have as good an effect, but would rot the legs of the stand.

Falkland, Fife.—It is just possible that the introduced queen may have left the hive with a small swarm: they sometimes do so with not more than a hundred bees, and there being a queen-cell in the hive which she has not destroyed and which has since hatched, favours the supposition. Why allow the antagonistic element (the queen-cell) to remain in the hive after the Ligurian introduction?

Winter Cluster.—'W. R.'—Five, or even four seams of bees when clustered in winter, indicate that the stock is a strong one. Five seams would probably contain ten to twelve thousand bees, the bulk of which will have packed themselves into the cells, and the interspaces between the combs would be filled by others that cling to the edges of the cells and to each other, thus forming an almost solid mass of bee life.

*** *We have this month given four pages extra to reduce the 'glut' of our Correspondence, but we are still reluctantly obliged to postpone several contributions of great value.*

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 68. Vol. VI.] DECEMBER, 1878. [Published Monthly.]

Editorial, Notices, &c.

DECEMBER.

During this month bees should be kept as quiet as possible, as every sign of activity which they exhibit causes wear and tear of nerve and muscle, and reduces their vitality. The weather during the past month has been unusually cold, wet, dull, and miserable, but bees have not suffered greatly therefrom, as they have been so much confined to their hives. The great importation of honey into England which took place on the 5th of last month has rather alarmed some of our nervous bee-keepers, who consider that if it can be brought in bulk from America, the business here will be ruined, but at present we see no cause for alarm. It may have the effect of tempering the views of those who ask fancy prices for their honey, but we are assured that in comparison with our best English, the Yankee honey is nowhere. Still, if passed by our food-inspectors, it will undoubtedly sell, though when all that concerns it is taken into account it will cost the consumer at least eighteen pence per pound (we are writing of what is called *best*), and at such a price English bee-keepers have little to fear, for that price will pay, and pay well.

In our last we made allusion to the great improvement which had taken place in the administration and usefulness of the British Bee-keepers' Association under its present management, and now we are glad to be able to report that after its year of increased labour, during which, thanks to the exertions of its Hon. Sec., and the prestige which attaches to the honoured name of its lady President, it has escaped the rocks and shallows over and around which it swirled, and has righted itself in every sense of the term. It is now in deep water, well anchored, and ballasted with a balance of sixty pounds sterling in its hold, an honour to the cause in which it is engaged, and the admiration of the bee-keeping world. The American Bee Journals are loud in their praises of the English method of spreading a knowledge of bee-culture. The *American Bee Journal* has repeatedly alluded to it, and in the November number of the *Bee-keepers' Magazine* (America) the President of the American Bee-keepers' Convention, Mr. J. H. Nellis, says, 'The English conventions are better managed than ours. We need system and co-operation in our movements, the manipulation of bees in public at our fairs and shows, and the giving of prizes recommended as increasing public interest and spreading information.' Further he says, 'Three things are necessary to the success of our Association:—First, foster local shows. Get a delegation from each one, for the National Society should be a representative body. Second, encourage local state exhibitions; the manipulation of bees, and the exhibition of honey. Third, give united hearty support to bee and honey shows. Our English brethren are making such rapid strides that if we do not look sharp we shall get behind.' This is the way in which the work of our Association is viewed by our Transatlantic brethren. They recognise the vast importance of its machinery, and the method by which such great results have been achieved; and they pay us the highest possible compliment by desiring to follow in our wake, and that being so, it ought scarcely to be necessary to commend the Association to our own countrymen. It has a great future before it, and we have no reason to think it will 'drag' through lack of funds.

The demand for a lecture, in skeleton form, adaptable to the need of every class, and to the mental calibre of everyone disposed to venture on the pleasing task of endeavouring to enlighten his neighbours and friends, has been fulfilled in a most agreeable way, and promises to be a success.

As a whole the year 1878 has been a remarkable one in the annals of apiculture, not everywhere satisfactory as regards its honey yield, but in favoured localities beyond comparison: as regards the science of apiculture, it is big with promise of great things; and we trust the year 1879 will see our favourite pursuit taking its place by right with other industries, which, though often adopted as

hobbies, are yet means of affording much pleasure and profit. We shall, however, towards the end of the present month arrive at a stopping-place, where every sensible mind will as a matter of course 'halt!' 'front!' and come to 'attention!' It will be Christmastide—a happy season, full of joy unspeakable and joyous hilarity, of family greeting and happy remembrances. It will be a time of refreshing ere the duties of life are taken in hand for a new cycle; well-founded hope is in the ascendant; let us pray that regrets may be buried, and earnestly wish each other a Merry Christmas and a Happy New Year.

WORK FOR THE MONTH.

There ought to be no necessity for interference with the bees at this time of year, and if our directions have been followed they will continue in health and vigour, provided that those that die naturally, as some assuredly will, are not allowed to block up the hive entrance and prevent the passage of the living on such days as they may be tempted to fly abroad for health-giving purposes.

In an old bee book it is asserted that, if the bees '*do not well*' it may be concluded that there is a dishonest person about the premises, the meaning of which doubtless is that everyone connected with bees and bee-keeping should be strictly honourable, or they ought not to expect 'good luck.'

Bees having, as it would thus appear, very tender consciences, can scarcely be expected to 'do well' in hives that have not been paid for, and their unhappiness on this score will doubtless prevent them passing through the winter with safety, therefore it would be well for those who wish them to prosper to 'pay up.' In addition to the benefit conferred on the bees, 'paying up' will be especially cheering to those whose best years have been devoted to improving the means of cultivating them. Honey stored in supers that have not been paid for should be sold at once and the proceeds properly appropriated. Queen bees in the same category cannot possibly be expected to act fairly if their masters do not; they will probably take all the advantage possible, and in the spring lead their swarms to those who *deserve* 'good luck.'

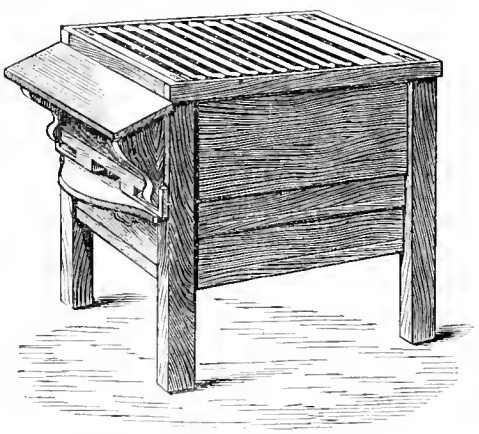
Honey extractors should be cleaned and set aside, and the necessity for 'Money extractors' avoided, 'unsealing' in the latter case being most disagreeable to everyone concerned.

Christmas is coming, and all bee-keepers should be prepared for it; it will be a merry time for those whose bees can be happy in their hives, and for those who do not like a pink wrapper when red holly berries are in season, and the world is wrapped in white; but for some who are not quite as conscientious as bees are said to be, it will be a bad time.

Those who are not identifiable in the foregoing, should take all possible precautions to procure the hives, &c. that they will be likely to require for 1879 in advance. We have year after year pointed out that it is a most difficult thing to provide storage for hives and bee furniture, because of their bulk; and at the time they are required it is most difficult to obtain them because they must (generally) then be manufactured.

THE COMBINATION HIVE.

The principles involved in the construction and management of this hive have been freely criticised both in the columns of this *Journal* and also privately, but nothing we have yet heard or read has altered our belief that the *innovation*, if the adoption of a practice as old as the hills can be so called, is a step in the right direction. The general appearance of the hive is similar to that of the Standard, but it is longer, and a little wider. In the engraving, we have endeavoured to show the arrangement of the frames, &c. in the body box, as exhibited at South Kensington the quilt being removed, and, as will be seen, an ordinary Standard frame is next to the front, then a frame *a* covered with excluder zinc to



prevent the queen's flight, and consequently to stop swarming during the honey harvest, then a number of frames to form the brood nest, followed by a second frame of a type to prevent the queen getting farther back, and after that the frames containing the sections marked *b*, in which honey may be stored; and at the back of all a wooden dummy which quite shuts off any space there may be left at the back of the hive. Of course it is not presumed that the arrangement suggested is the only one of which the hive is capable, it will accommodate itself to a

variety of uses, but it is not necessary to specify them now as they are not yet likely to be tried, and space herein can be better employed.

BRITISH BLUNDER AT THE CLOSE OF THE PARIS EXHIBITION.

Those who have been engaged in the business or pleasure of exhibiting will agree with us that, notwithstanding the liveliest feeling of satisfaction at the general result achieved, the process of repacking and going home after the day's excitement was over is most trying and disagreeable. Mislaid packing-cases, lost labels, cords cut to pieces in UNpacking, and none to be found now when their absence is most irritating, hammer, nails, screws, and screw-driver borrowed by a neighbour, paste-pot gone, and a hundred and one other mishaps occur that render the closing scene at an Exhibition anything but delightful; and in view of all these probabilities, we in common with probably hundreds of other exhibitors, hailed with delight an announcement that a French firm had arranged with the British Commission to repack and send home all exhibits at fixed charges. This arrangement was made early in October, and the Exhibition was to have closed on the 31st of that month, and having signed all the necessary 'forms' we were patiently waiting the return of our goods, when, to our astonishment on the 8th of November we received the following circular note:—

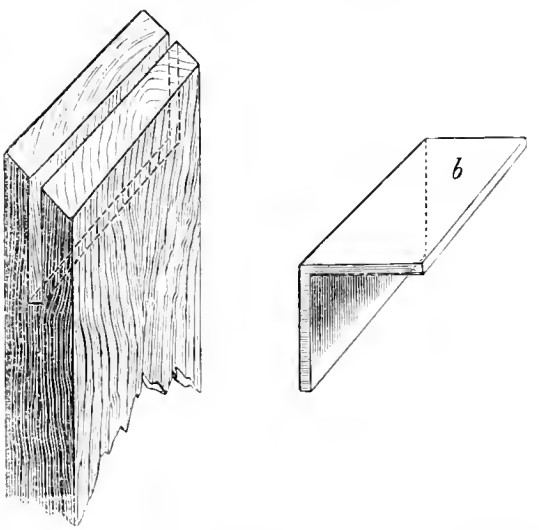
'Paris, November 8th, 1878.

'SIR,—I beg to inform you that at the last moment Monsieur M. Henriquez has withdrawn from the agreement he entered into with the Royal British Commission to pack exhibits. I must therefore ask you kindly to communicate with the agents whom you have appointed for transport, and request them to attend to the packing on your behalf, or make some other arrangement.—I am Sir, your obedient Servant, PHILIP CUNLIFFE OWEN, *Secretary*.'

Comment is unnecessary, and how others fared we know not; but why having allowed M. Henriquez to enter into a contract with them, did not the British Commission hold him to it, or make him pay the reckoning?—ED.

ABBOTT'S METHOD OF SECRET MITREING.

PUTTING SECTIONS TOGETHER.—We have hit upon an entirely new way of putting sections together, that, to use the words of a joiner to whom we showed it, 'is quite worth a patent.' It consists of grooving with a saw the ends of the pieces forming the sections and letting into the solid wood angle pieces of iron or stout tin, which hold without nail, screw, or glue, and make the sections ten times stronger than they can be made by any other method of putting them together. The method of manufacture is simple, the boards of which the sections are to be formed are cut into the proper lengths with mitred ends, these lengths are then set against the fense of a circular saw-bench, and a groove *a* is cut along the centre of the mitred parts, as if the lengths were about to be sawn to half thickness, but the grooves need not be more than ¾ of an inch in depth, somewhat as shown in the engraving. The angle piece *b* of the same thickness as the saw groove is then slipped into *a*, and thus one side of a section is ready to receive its top, and when all the pieces are put together they form the strongest, squarest, and safest sections ever invented. The charm in them is not only their portability, and their easy way of coming together, but the fact that when together they require no box or crate to hold them, as every one is so strong that it may be trodden on almost with impunity. For making sections of our (*i.e.* Abbott's) pattern with glass strips at bottom through which the quality of the honey may be observed, nothing could be better, as when the angle plates are in and the glass strips cut very slightly too long the spring of



the ends of the sections will hold the glass without glue or other means of fixing. This method of joinery *is* worth a patent, and it is the fear that some one to whom we have shown it may get it protected on his own account that induces us to publish it thus early. Not only is this method applicable to the manufacture of sections, but it may be made available for the most splendid specimens of secret mitreing, as by dropping the mitred parts to be joined, on to a saw whose diameter is less than the width of the pieces, saw grooves of semicircular form will be cut into them; and if the angle-plates be of the shape of a bent half-penny, of a size to *fit* the grooves, and put in

with glue, the joint when dry will be both strong and neat; and if when cleaned up it be shown to a green hand, he will have to split it up before he will be able to discover the means by which it is held together, for inasmuch as the angle-plate will not show, and there will be no dove-tails, mortices, nails, or screws, the secret will not be readily found out. We shall be glad to send a sample of section to any address for six penny stamps; any one can make them when they have a pattern.—Ed.

ADULTERATION OF HONEY—GLUCOSE.

In the American Bee Journals a strong discussion is going on with regard to the use of glucose as food for bees, and of its similarity to honey in appearance, by means of which the adulteration of honey is rendered easy; and, as the editor of *Gleanings* has been recommending grape sugar, to which it is nearly allied, for bee-food, he has been sailing 'too near the wind' to please those who will not listen to anything which seems to temporise with the question.

In the *American Bee Journal* for October last, Mr. Chas. Dadant, in an article on the 'Adulteration of Sweets,' says, 'Mr. Root, who believes in miracles, does not believe in science, since he imagines that scientists cannot detect adulteration. He does not believe in legislation, but he believes in letting people exercise their common sense, leaving demand and supply to regulate disputed questions. Every adulterator would endorse these views and become rich before the question of adulterated honey could be fixed. In nearly all the civilised nations of the world, in England, France, Germany, &c., there are public officers to examine all the articles of food offered to the people. Why? Because nobody would be able to detect all the frauds. For years glucosed honey has flooded our market, hindering the sale of the pure article. What good in this case did the system of letting the demand regulate the supply? None; for the adulterated article is every year more and more freely offered. Some of the adulterated article was exported to England. Immediately it was detected, the grocer of Glasgow who had sold it was fined, and the American dealers hastened to remove their spurious article not only from England, but from France, and this unlawful business was nipped in the bud on the European continent. If legislation can do that, let us have legislation.'

It will be seen from this extract from an outspoken letter that American bee-keepers have no means of detecting and punishing the spurious dealers, who are pushing them from their stools, and ruining their business, and they have just awakened to the fact that legislation in such case would be most valuable. Mr. Root (editor of *Gleanings*), however, refuses to use his influence in endeavouring to move Congress on the subject, hence he is subject to very severe criticism.

LARGE IMPORT OF HONEY.

Novel Consignment from America.

The representative of Messrs. H. K. and F. B. Thurber and Co. arrived in this city on the 5th inst. per steamship *City of Berlin*, with 80 tons of honey. This vast aggregation of bee labour is the partial product of the 12,000 swarms of bees these gentlemen are interested in, and which are distributed throughout the honey-producing section, of the United States, in apiaries of 100 swarms each. The production of honey as a remunerative business is a new industry pregnant with many interesting facts. Only experts can properly manipulate bees, and 120 experienced hands are employed in the management of these 12,000 swarms. The bees are in the most approved hives, and valued at about 2*l.* per stock or swarm. Taking the low estimate of 50lbs. of surplus honey per swarm, the gross production of honey for the market from these bees aggregates, say 600,000*l.* worth. In years past honey has been put up in such a shape as to be entirely unmarketable; in fact, this lack of uniformity and its slovenly condition has been one of the greatest difficulties shopkeepers have had to contend with. Through the ingenuity of American bee-keepers the bees have been educated to store their honey into 500,000 neat little glass-sided boxes, to glaze which about one million panes of glass are required. These little boxes are packed one dozen in a crate, thus making a convenient marketable style of package. It has remained for this trip of the *City of Berlin* to satisfactorily solve the problem of safely bringing honey in the comb from America to Europe. The infinite care and judgment demanded in the transportation of a cargo, and the extreme liability of leakage from the breaking away of the comb from its bearing through the slightest jolting or rough handling, were considered insurmountable difficulties. The Messrs. Thurber have overcome these difficulties, and showed that the transit of combed honey could be made as successfully as that of a cargo of tea.

This shipment of honey is a most substantial confirmation of what a correspondent said in the London *Times* of October 11:—'Our Transatlantic brethren are wiser in their generation than the majority of bee-keepers in this country. They are surrounded by vast flowery prairies, yielding honey in a profusion unknown elsewhere; the average per stock is simply enormous.'

The above consignment of honey, which is interesting both from the novel form in which it is prepared, and for the magnitude of its quantity, can be seen at the store of Messrs. W and J. Lockett, merchants, 12 King Street.

The *novel* consignment comes from a prominent firm whose label was attached to the beautifully prepared honey, the sale of which caused the conviction of a Scotch grocer (see *Journal* for Nov. 1877), it having been proved by Dr. Clarke, the analyst, to be more than half glucose. Now glucose is a preparation from starch, and more than one half of it is *dextrine*, or gum. It contains also grape-sugar, sulphuric acid, sulphate of iron, and chalk, in greater or

less quantities. Its value in trade is about twopence halfpenny per pound; but alone it is too thick and gummy to pass for honey, so of course it is diluted before the honey flavouring is added to it. Fifty-seven per cent was the amount of glucose which had been added to the bottled honey sold by the Scotchman alluded to, and dilution probably added twenty per cent more to the impurity.

There is, however, no limit to the possible; and it may have happened that the bees gathered the impure honey alluded to, having found it welling, after the manner of petroleum, from a rock, and that everybody was perfectly innocent in respect of adulteration. It is, notwithstanding, well known that bees will take the abominable stuff when they can get nothing better; and furthermore, if mixed with a little honey and water, that they will take it and store it as if it were genuine nectar, producing honey-comb (or 'comb-honey,' as our American friends prefer to call the *genuine* article) of surpassing beauty? We have not seen samples of this last novel importation, but coming as it does from the land of wooden nutmegs, whence came what has already procured the conviction of one retailer, we think our English grocers will be wise if they exact from the wholesale dealers a guarantee that it is what it is represented to be.

In the above report we note that Messrs. Thurber and Co. are represented as being 'interested' in 12,000 hives, managed by 120 'experienced hands;' but as we do not find the name of Thurber and Co. in the statistical table for the autumn 1878, published in the *American Bee Journal* of October last, we are led to assume that they are not bee-keepers, but that they have undertaken to find an *outlet* for the production of 120 of those who are, in which case the necessity for care in the purchase and retail of the lots is more than one hundred times more necessary, having in view the probable visits of food-inspectors. Undoubtedly the form of the sections, the mode of putting up, and the general appearance of the goods are all that can be desired, and the contents may be sufficiently palatable to ensure ready sales; but if it is not what is represented, it will be dangerous for our traders to handle. We note that the calculation of honey, at 50 lbs. per hive, is put down as if it amounted to 600,000*l.* sterling, whereas it should be 600,000 lbs. of honey, which is offered wholesale, including packing and freightage, at an average cost of a trifle over tenpence per pound, and would amount in the gross to 25,000*l.* only. The value of the export, taking the figures as they stand, *i. e.* 80 tons at 10*d.* per pound, is 7466*l.* 13*s.* 4*d.*—Ed.

RATIONAL SYSTEM OF WINTERING BEES.

How to successfully and profitably winter bees, seems still to be the puzzling problem with many of our apiarists, and as the season is now rapidly approaching when our little busy pets are housed for a number of months, it becomes us to adopt the best system possible so as to secure their health and comfort.

This subject engaged my attention for a number of years, as year after year a number of colonies were lost, and some apiaries entirely depopulated.

Other domesticated stocks can be wintered without loss, and why cannot bees be wintered in an economical way with the same degree of safety and certainty?

I have wintered in many different ways, but when brought to the severe test of a long and cold winter, all have proven unsatisfactory except one, which I first commenced experimenting with in the winter of 1870-71, and perfected in the fall of 1873, and I am now persuaded this is the only correct and rational system, as it secures protection against cold, and imperceptibly passes off the moisture exhaled by the bees, and also guards against the sudden changes of temperature. Unless these three things are provided for, the bees must suffer.

Upward ventilation, whilst it passes off moisture, if direct, will also permit all the warmth that is generated by the clustered bees to escape.

Warmth being absolutely necessary for their existence as well as comfort, hence, if this passes away too rapidly, a much larger consumption of honey ensues to generate an extra supply of warmth. It also causes an unnatural degree of activity of the colony, which is very objectionable in cold weather. As the warm air escapes, the bees suffer cold, and from the excessive amount of food consumed, undue activity and exposure to a continually changing temperature, disease and death follow. (By referring to my journal, I find that in the winter of 1872-73 I lost all my colonies having direct upward ventilation, while those properly cared for had no trace of sickness.)

If no upward ventilation is provided, the moisture exhaled by the bees condenses and forms ice on the walls and top of the hive, making their home very uncomfortable in cold weather, and as soon as the weather moderates sufficiently, the ice above and on the sides melts, causing wet and damp combs to say the least. In many cases the water comes in direct contact with the combs occupied by the cluster. When this occurs, and the temperature lowers suddenly—as it often does in midwinter, the colony is lost.

It is true, bees can be wintered in a good dark cellar specially prepared to receive them, but not every bee-keeper is thus situated. But look at those bees when taken out in the spring, and how many mouldy combs and debilitated bees do you find? After such colonies are placed on the summer stands in the apiary, perhaps for a fortnight, they do not contain over one-half their numbers when taken from the cellar, and why? Because the bees being unnaturally confined, living in an impure atmosphere, underground, have not sufficient vitality, and when they fly away from their hives they cannot return. This is what is generally termed 'spring dwindling.'

Bees in plain box hives, whether moveable comb or not, sometimes winter on the summer stand if left alone without any care; but this is only an exception, and not the rule, for if those same colonies had the proper protection, they would have consumed much less nutriment, and contain more bees and brood at the opening of spring; and during winter, when cold and piercing storms are raging, the apiarist who properly winters his pets, can sit in his comfortable room and feel happy and contented, knowing that his bees are also comfortable and enjoying their long winter rest.

The condition of the colony in the fall has a great deal

to do with successful wintering. A colony, to winter well and be ready for early spring work, must contain—First, a goodly number of workers; second, a healthy, prolific queen; third, abundance of honey and pollen stored in clean comb. Thirty to forty pounds of honey is not detrimental, although twenty-five will do—more is an advantage in this latitude. I never found a single colony suffer from too much honey, if properly handled—many good and much-respected authorities to the contrary do not alter the fact. I am satisfied that where one colony suffers from too much honey, ten thousand suffer from not having enough. I never saw a colony on the first of October that had not some empty comb or comb with brood. If honey is plenty, then empty or brood cells are in the lower front corners of the combs, just where they should be, and until extreme cold weather sets in, which in this locality—south-western Pennsylvania—usually occurs the latter part of November, enough honey is consumed to give plenty of room for the swarm to cluster. I am now speaking of colonies having good laying queens, my experience since 1868 having been with Italians.

Bees can also cluster on sealed honey-combs and not suffer. Here I am again on forbidden ground. But I array facts against theory, for I have often found in my observations, when the mercury was visiting in the vicinity of zero, bees nicely clustered against their warm woollen quilts, although all seven frames were filled and sealed for at least 4 to 6 inches, from the top bar of frame downward, the rear ends of the frames generally being full of honey. This can only be done when the warmth is retained so that the combs can be kept warm by the bees. This, however, cannot be done by a single wall hive, or in any hive having a honey-board, although it may have a dozen inch holes, as moisture will condense, and warmth escape too rapidly.

Another point that must not be overlooked is the number and shape of combs. To try to winter with ten or eleven frames is an error. More than seven frames are positively injurious—for medium colonies, five frames are enough. Bees cannot move from one side of the brood-chamber to the other, on to new combs, in cold weather, without chilling, and this is why many colonies are reduced or altogether lost in hives having a large number of frames. By using a comb about 10 inches deep and 18 inches from front to rear, the honey is always above and rearward of the bees, and as the honey nearest the swarm is consumed, the bees can easily follow for fresh supplies, without changing combs.

To fully secure the bees against cold and the sudden changes of temperature, and to insensibly pass off the moisture exhaled by the bees, I have made the Combination Moveable-Comb Bee-House, which in winter consists of the brood-chamber and the outer case or house. A dead-air space of 4 inches being all around between the brood-chamber and inside walls of the house, and a space 7 inches from top-bar of frames to upper edge of outer case or house. The frames have open tops and closed ends, being 13 inches deep and 19 inches from front to rear, outside. Seven frames form the brood-chamber. About 3 inches below the top-bar, several passage holes are made about one half inch in diameter, for the bees to pass back and forth, and to equalise the warmth of the colony. Across the top-bars of the frames, several strips of wood, one half-inch square, are laid, and over the whole—as a cover of hive or brood-nest—a woollen quilt is spread, being 6 to 8 inches larger each way than the top of brood-chamber.

The space of 4 inches between the sides of brood-chamber and house is well packed with wheat chaff, or cut straw, if chaff cannot be had, and on top of quilt the space of 7 inches is also filled with the same material, when the roof is put on, which has a ventilator at each end to give free circulation of air. This keeps the bees perfectly warm and dry.

The brood-chamber entrance is so adjusted as to come near the right-hand corner, while the portico entrance is moved to the left hand, thus no direct blast of air can strike the hive entrance, neither is there any danger of the entrance closing with ice, as it is always protected, and comparatively dark.

For in-doors, I simply place the brood-chamber several feet above the floor of the cellar, covering the frames with a warm woollen quilt, and contract the entrance to one half inch in width. This keeps the bees dry and warm, the moisture passing off through the quilt, whilst the warmth is retained. Several times during winter, on warm days, they are let out for a fly.

With this system I have now wintered my bees for five seasons, and not lost a single colony, which fact assures me that my system is correct.

Hoping that my fellow bee-keepers may be benefited by my experience and observations, is the desire of your obedient servant,—H. H. Flick, *Mayfield Apiary, Lavansville, Pa.*

The foregoing was read at the North American Bee-keepers' Convention on October 8th last, and reported in the *American Bee Journal* of last month, and is copied here as valuable and assuring evidence to our readers that our teaching is, in the main, in direct accord with that of the most advanced American bee-keepers. It is, perhaps, fortunate for us that our 'Combination Hive' was approved so early in the year as August last, while the American 'Combination Moveable-comb Bee-house' did not put in an appearance until the ensuing November, and it is singular also that the principles governing them are so nearly allied! There have been plenty of instances when different minds have been working out problems without a knowledge of each other's existence, and this is probably another case of the kind, but having been 'first in the field' in our own country, we hope *we* may at least escape a charge of plagiarism.—Ed. *B. B. J.*

BRITISH BEE-KEEPERS' ASSOCIATION.

Committee meeting held at 15 Beaufort Buildings, Strand, on Wednesday, November 13th, T. W. Cowan, Esq. in the chair. The principal business before the meeting was to take into consideration the proposal to hold an exhibition of hives, bee-furniture, and manipulations with live bees in connexion with the Royal Agricultural Show to be held in London during the first week in July, 1879. The Secretary read a letter received from the Secretary of the Royal Agricultural Society, stating that a moderate space of ground would be allotted to the British Bee-keepers' Association on the understanding that no charge should be made to the visitors to the bee-tent. A long discussion ensued, and various proposals were made as to what means should be adopted to enable the Committee to meet the expense that would be incurred by the Association in holding such a show. Ultimately, the Rev. E. Bartram proposed, and Mr. Hooker seconded, the following resolution: 'That the Secretary be requested to write to the Secretary of the Royal Agricultural Society, calling his attention to the fact that a small charge is allowed by the Highland Agricultural Society at their shows for admission to the bee-tent where manipulations take place, and that, unless some such charge be allowed to the British Bee-keepers' Association, the Committee cannot meet the cost which

will be necessarily incurred by such manipulations.' It was unanimously resolved that the Association's Annual Show for 1879 should be held at the Gardens of the Royal Horticultural Society during the last week in July in connexion with one of the large Flower Shows to be held at that place. The Treasurer reported a balance in hand of 54*l.* 3*s.* 3½*d.* The Committee hope to close their financial year with a balance of sixty pounds in their favour.

Notices of Books.

The New Bee-keeper's Text-book, by A. J. King, Editor of the *Bee-keepers' Magazine*. Twenty-fourth edition: fifty-second thousand. Being a thorough revision of the old text-book, by N. H. and H. A. King (Hudson Street, New York); enlarged and illustrated. Price, one dollar. This is a handy little volume of 230 pages, written chiefly for American bee-keepers, but containing information of great value for all countries and seasons. On one of the most important subjects, 'Hives,' it is quite a treat to find that the writer has no speciality of his own to puff, as is too much the case on this side the Atlantic, but the remarks are sensible, general, and comprehensive. He says: 'The value of a hive depends upon its size, shape, and the advantages secured in its construction. Experience has demonstrated that, as a general rule, when we vary from the correct size, the larger the hive the fewer the swarms we get; and the smaller the hive the smaller the swarms will be, and the greater the danger of overswarming. A hive should contain about 2000 cubic inches in the clear. A stock in a hive of this size will swarm more regularly than from a larger one, and store more surplus honey, while if the hive be made smaller the colony will often fail to lay up provision enough for our long winters. All the hives should be much of the same size, as a very large swarm will usually be no larger after a few months than one of medium size, while a small swarm may be as large as any at the end of the season, much depending upon its having a prolific queen, good weather, and an abundant pasturage.' There will, as a matter of course, be some directions more applicable in America than in England: but they may be easily recognised. As a whole we consider it next in order to Bevan, Quinby, and Langstroth. —Ed. *B. B. J.*

APIARIAN NOTES.

The hope I expressed last December of having a 'fair start this spring,' with pure Ligurian queens at the head of all my stocks, has been quite wrecked by the sad experiences of 1878: as two of them perished during the winter, and the other imported queens proved to be very indifferent breeders, or were affected by the wet and ungenial weather we had in this neighbourhood (Hull).

Jan. 13th.—Examined stocks, found all alive, and cleared out dead bees from entrances.

Jan. 17th.—Bees out in great numbers from three of the stocks, as this was a very fine day. Two stocks sent very few out; but these afterwards proved to be the strongest, thus confirming the statement of 'our Editor,' that often when bees come out in such numbers in winter, or spring, it is not always a proof of health and strength, but rather of their being on the verge of starvation.

Jan. 24th.—Frosty night, with a heavy fall of snow early next morning, then fine and frosty during the day, with more snow at night.

Jan. 26th.—Fine bright day, just the one to tempt our favourites out to their destruction, if the precaution of shading the entrances from the sun had not been adopted; but that I have always done for many years in the winter—snow or not—to keep all as quiet as possible. The frost continued for a day or two longer.

Feb. 10th.—Found one hive (No. 7) very weak, and very many dead, outer combs mouldy, and traces of dysentery. Made some barley-sugar and fed them.

Feb. 11th.—Very fine to-day, bees out in crowds. Examined and cleaned floor-boards of the weak hive, and another (No. 4), which I found strong in numbers, and with such ample stores, that I took out a comb of sealed food to give to the weak one (No. 7). Nos. 5 and 6 seemed all right, but gave them a little barley-sugar, as I had not time to clean them out. Found all dead in No. 1—quite a mass of dead bees. (This was one of the three stocks that seemed so strong in numbers on the 17th ult.) How provoking! when a few pounds of food would have saved them. Cannot understand how it is that one should be starved to death, and the next stock to it should have abundance, when all were liberally fed in autumn with about the same quantity.

Feb. 22nd.—Examined No. 5 and 6, cleaned floor-boards, and scrubbed out the hives with a dry scouring-brush. Found a good many dead in No. 6, but only a few in No. 5. Lots of eggs, larvæ, and sealed brood in No. 6, with eggs and larvæ in No. 5. Commenced feeding slowly with syrup through two holes of a feeding stage.

March 10.—Being jealous that robbing was going on in No. 7, I examined it, and found nearly every bee gone! where, I know not, as there were very few dead ones; but some blacks had nearly cleared all the honey out of the comb. I drove them out, and blocked up the entrance. We had some fine warm weather during the early part of this month, until the 21st, when it was much colder, and on the 22nd we had a storm of snow in the afternoon, with frost and more snow at night.

March 24th.—In the afternoon it snowed heavily for four hours. It came on with a sudden squall, and was very gusty all the time. This was the same storm in which the ill-fated *Eurydice* was capsized, and over 300 lives lost. Snow fell at intervals during the next three days, with frost at night, and on the 28th it was very keen, but fine.

April 17th.—About this time found bees from No. 4 flying out and falling to the ground, from which they could not rise. Examined hive and found them starving: gathered up the fallen, warmed and fed them at once, and thus saved them. This was the stock that before the late cold weather had a lot of sealed food.

April 20th.—Saw first swallow, and scores of them in the evening.

May 4th.—Heard cuckoo first time.

May 20th.—No. 4 in a starving condition, although I have been feeding them slowly all the season. Found the 'yellow jackets' from No. 6 were robbing them, so closed the entrance with perforated zinc, and fed more liberally.

May 21st.—As I could not stop the depredations of No. 6, removed No. 4 to an outhouse for a few days. Bitterly cold the last few days, with N.E. wind, and a deal of rain.

June 1st.—Saw first queen wasp, and killed her. (We have had very few wasps about the whole season.)

June 7th.—Made an artificial swarm from No. 5, and placed stock on No. 3 stand.

June 10.—Found many had deserted the stock, and joined the swarm, so took two brood combs out, and added them to the other hive. Several queen cells were in progress, but on examining them a few days afterwards, found the cells empty, so inserted another comb from No. 6. Three cells were formed close together a day or two after, and one was sealed, and two days afterwards all were sealed. In due time a fine Ligurian queen was hatched, and she was duly fertilized, as she laid eggs, and had brood in all stages, and seemed likely to do well. How she was fertilized I can-

not say, as one most remarkable circumstance was the almost entire absence of drones in my apiary this season. This was the more remarkable as I had not excised any drone-comb, being anxious to have as many pure drones this year as possible, in order to ensure purity of race; but I don't think that I ever saw more than half-a-dozen drones on the wing the whole season.

The two imported queens in Nos. 4 and 6 never filled their hives to swarming point, and it could not be owing to my removing brood-combs for queen-raising, as the one before mentioned was the only one I attempted to raise, finding the two hives had no surplus brood combs to spare, in fact, the paucity of bees prevented me trying to utilise the two queen-cells that were raised.

The queen hatched on the 4th of July last year proved the most fertile, but although the hive was full of bees they never showed any symptoms of swarming. It may in part be owing to the fact that we had miserably cold and wet weather until the 18th of June, and only after that was it at all fine and warm. I kept on feeding the whole of them until this time, only stopping when I was sure they could really find some honey in the fields. I continued to feed the artificial swarm for some time, but they never prospered, and going away for a few days found them dead on my return; and in August No. 4 was found to contain only a handful of half dead bees; and No. 6 was so weak, and continued so in spite of feeding, that I got a cast from a friend on the 2nd of October, and united them, hoping thus to save the only imported queen I had left, although the queen I raised myself last year breeds them quite pure, and as beautifully marked as the others. On October 3rd I examined them to see what had been done with the black queen (as I had not removed her, it being dark at night when they were received), and found her encased on the bottom of a frame, so I removed it and looked for the Ligurian queen. When I found her she looked so poor and feeble I was half disposed to dethrone her, and put the black one in her place, as after dispersing the knot of bees I found the latter to be a very fine one. However, I left her in charge of two or three workers, intending to keep her a day or two, and give the Ligurian another chance; but while I was putting her on the comb in the hive on turning round to look for the black one, I found she had taken flight, so I must perforce do the best I can with the old Italian, which I fear will be very little, as they are a poor lot even now.

I got one frame of honeycomb from No. 5, and that constitutes my honey harvest. It is enough to dishearten one to see others who take not a tithe of the care, and yet have prosperous colonies, which seem to thrive in spite, as it were, of all neglect. Of course they are in the country, but if we can have samples of London honey, surely we might succeed better here, although the difference in the surroundings as compared with what they were twenty-seven years ago, when I first started bee-keeping, is immense. Then we were, comparatively speaking, in the country; now, owing to the increase of population, the green fields, gardens, and orchards, have given place to human dwellings, so that our pets have much further to go to find their supplies. I expected a wonderful improvement in matters when I secured Ligurian queens in every stock, but have been sadly disappointed with them so far. I tried them years ago (1867) when Mr. Woodbury was so busy distributing them, but with not much better success. There was more difficulty then in keeping them pure, but I think they proved more prolific than these have done.

While writing it occurs to me to mention a remedy for the sting of a bee, which I recommended years ago in the *Journal of Horticulture*. As I said then, it is at once simple, cheap, and effectual, and it is generally near at hand too—and that is, good vinegar. I venture to say if your readers will try it, they will need no other remedy.—J. R. J.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be fully and faithfully recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

WAX-MOTH AND THE MEANS OF ITS DESTRUCTION.

I sympathize with your lady correspondent in Australia who bewails the loss of bees in that colony from the ravages of the wax-moth. I have suffered to a greater extent from this pest than any other; but have now much reduced their numbers by a simple and inexpensive contrivance. It consists of pieces of stout brown paper or cardboard made into cones like an extinguisher. My method of procedure is this,—having supplied myself with a number of pieces of stout paper, I strike a circle on one piece about the size of a soup-plate, I then cut the whole to this pattern, I next divide these into half circles, and with a little glue or paste stick the straight side by drawing it together, thus my cones are formed. When dry I either paint or varnish the outside of each, partly to render them waterproof, but in part to prevent moths eating away the paper to get at a piece of old empty comb, which I stick in the apex of the cones. Having placed this I procure any sticky substance, such as we see used in the summer for catching flies; I get a small quantity of Venice turpentine with a little oil and treacle; I simmer this up and apply it while warm to the inside of the cone with an ordinary paint-brush, and my moth-trap is now complete. I then tack these sidewise on bits of board, and lay them in my bee-houses on the tops of hives, or any place I think likely to be frequented by moths, and occasionally look to see if the inside requires a fresh coating of the glutinous mixture. This method of catching these pests answers well, very few ever succeed in getting to the bit of comb, but are stuck either by legs, wings, or both in the attempt; and even if they succeed in extricating themselves I much doubt if they are ever able to fly again to do more mischief. I recommend those who try this trap to fix it as I suggest, as in case any moth should chance to succeed in depositing eggs in the bit of comb the young from these eggs might possibly drop from the bait without touching the sticky surface of the cone, but this could not possibly happen if the trap is fixed as directed. It has answered well in my apiary, but I have not neglected your excellent advice, as given in the *B. B. Journal*, as to cleaning floor-boards of all *débris*—not allowing useless pieces of comb to hang in weak stocks, and stopping up all cracks where these pests could deposit eggs. I hope the method I have suggested may be the means of greatly reducing the numbers of these pests.—William Hunt, *South Warnborough, Hants, Nov. 19th.*

PASTURAGE FOR BEES.—No. IX.

(*Continued from p.* 216, *Vol. V.*)

Elm (*Ulmus campestris*). This beautiful giant of our parks and homestead is probably a native of England, as the name elm is Anglo-Saxon, and appears to be derived from a root-word indicating height and strength. Gilpin says, 'that an elm was felled in 1674 on Sir Walter Bagot's Staffordshire estate. Two men were five days in felling it. It was 120 feet high, the stool 47 feet in circumference; 160 naves for wheels, and 8660 feet of boards were cut from it, and the whole tree was computed to weigh 97 tons.' No tree is better adapted for the formation of an avenue, and not one is more used for the purpose. The most striking is that at Strathfieldsaye, a mile in length. The fitness of elms for avenues arises from their branches crossing at a pleasing angle, growing pendent in age, and far above the heads of the passers beneath. Gilpin truly observes that no tree is better adapted to receive grand masses of light, nor is its foliage, shadowing as it is, heavy in effect. Its leaves are small, commonly hang loosely, and the forms picturesque. It is the first tree that salutes the spring with its light and cheerful green, a tint contrasting agreeably with that of the oak, the early leaf of which has usually an olive cast. In autumn also, the yellow leaf of the elm mixes as kindly with the orange of the beech, the ochre of the oak, and other hues of the fading wood. The elm is one of these guide-plants accepted by gardeners in the olden time, and they had this rhymed—

'When elm leaves are as big as a shilling,
Plant kidney beans if to plant them you are willing.
When elm leaves are as big as a penny,
You must plant kidney beans if you mean to have any.

Drooping and wych elms (*Ulmus montana*) are particularly effective as lawn trees. They are quick growers, and their outline is graceful, speedily forming natural bowers if a little care is taken to train their pendent branches, and the gold and silver variegated sorts afford a fine relief to the dense green pervading landscape masses.

Ulmus campestris and its allies are raised by suckers and layers, but chiefly by seed, which should be gathered in June as soon as ripe, and sowed in light mellow soil. The elm blooms in April and May, from which the bees collect honey; the leaves also some seasons produce honey dews.

Sycamore (*Acer pseudo platanus*). This noble ornamental tree belongs to the maple (*Acer*) genus, and much resembles the plane-tree (*Platanus*). It is a native of the mountainous districts of Germany, Italy, and other parts of Europe. It is supposed to have been introduced into England between the years 1596 and 1633, as Gerard does not mention it in his *Herbal*, in the year first named, but it is mentioned in the edition of 1633. It is a very ornamental tree, growing to the height of 60 feet. The growth is very rapid compared with that of most other species of maple, particularly when it is in a deep, free, rich soil, and in a mild climate.

It arrives at its full growth in fifty or sixty years, but it requires to be eighty or a hundred years old before its wood arrives at perfection. In marshy soil or in dry sand, and even on chalk, the tree never attains any size. It blooms in May and June and produces fertile seed at the age of twenty years, but flowers several years sooner. The longevity of this tree is from 140 to 200 years.

The wood weighs, when newly cut, 64 lbs. per cubic foot; half dry, 56 lbs.; dry, 48 lbs. It loses in drying about a twelfth part of its bulk. When the tree is young it is white, but as the tree gets older the wood becomes a little yellow, and often brown, especially towards the heart. It is compact and firm, without being very hard, of a fine grain susceptible of a high polish, and easily worked either on the bench or on the turning-lathe. It does not warp, and is not likely to be attacked by worms, and is much used by cabinet-makers, musical instrument makers, for cider-presses, and sometimes for gun-stocks.

It is great shelter, for prevailing winds, however strong, do not bend it from a perpendicular growth, nor is it injured by the sea spray. The bees get what propolis they require from the bursting of the leaf buds, and its leaves at all periods of their growth are especially liable to exude a portion of their saccharine sap or honeydew, which the bees collect at times in great quantities, but the honey is generally of a dark colour.

The sap is so saccharine that sugar has been extracted from it, but not in quantity sufficient to render the extraction profitable; 116 lbs. of sap would yield only 1 lb. of sugar, which is like the common brown sugar, but having a different flavour.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

BEES STINGING GLOVES.

A lady writes:—'I have lately had a very similar case to your correspondent, "W. G. R. Kent," described in the September *Bee Journal*. On opening the frame hive some half-dozen bees at once attacked each hand, stinging viciously through a thick dogskin glove. For a moment I could not understand it, but I thought of your reply to "W. G. R." that the gloves must have the odour of the poison of the sting from a previous time, so I took off the gloves, washed my hands, and returned to the hive and finished my work without another bee attempting to sting the hands uncovered. What I always find most difficult to guard against is bees creeping up your sleeves or your petticoats when they fall on the ground. I have the indiarubber glove gauntlets that go over the sleeves.'—M. A. Davidson.

THE PATERSON BEE-FEEDER.

This bee-feeder is made of tin, but may be formed of zinc, wood, or any other suitable material in size, appearance, &c.; it is exactly similar to one of the frames in the particular hive for which it is pro-

vided, the syrup is poured in by means of a circular opening in the top, which is fitted with an air-tight screw. After the stop-cock is opened the liquid gradually oozes out as the bees remove it from the shallow trough which runs along the bottom, but which, if thought desirable, may be placed higher; it acts with great uniformity, the pressure being regulated by an air-tube which only admits additional air when the syrup in the trough sinks below the level; there is no possible risk of overflow, the bees are in no way exposed to the cold, and it can be filled over and over again without being removed.—D. PATERSON, *Struan, Perthshire.*

P.S. I may say that we have very mild weather here just now. Bees out every day taking the air, but lots fall a prey to the little birds who are waiting to pick them up as they alight.

CYPRIAN BEES.

Mr. W. Hepworth Dixon has been visiting Cyprus, and in a letter he wrote from Ormidia in September, he thus refers to the bees of the island:—

'Bees swarm about the garden, laying up their store of honey for a winter not too long. In a land which gives no milk, and therefore knows no butter, honey is an object of man's greatest care; but bees, like negroes, Bedouins, and other thriftless beings, lay up no excess of food. At best, they have none to spare, and in this garden their greatest enemies are the hornets, who lie in wait for the returning bees, attack them, rifle them, and not unfrequently kill them. The marauders are entrapped by very simple means. A bottle, half filled with water, is sufficient to entice them to their death. A hornet is a thirsty thing, and turns to water as a drunken man to grog.'

MILK FOOD FOR BEES.—PRICE OF HONEY IN IRELAND.

Last spring I had five stocks of Ligurian bees very weak after the winter, I then fed them with milk and sugar boiled together for a few seconds. I made a zinc feeding-pan with a mahogany float, made a small box for it, on the top fixed a piece of glass, and left the side facing the sun open. I began by giving half-pint of milk and half-pound of sugar (best soft); I very soon had to give them one pint of milk and one pound sugar in the day. In about three weeks from the time I began to feed them they could take a quart of milk and a pound and a half of sugar daily. As I was the only person in the locality who had Ligurian bees, I could see there was no robbing going on. When the feeding season was over I examined the combs to see if any of the milk was sealed over; very little of it was sealed, but the combs were full of brood. About the 10th of June I sold one of the stocks to a friend about 200 yards from our place; I have taken 180 lbs. of super honey from it, leaving them from 30 lbs. to 40 lbs. for the winter. This hive collected honey at the rate of 8 lbs. per day for a time; from the four stocks left I had six swarms (four artificial and two natural ones) and 400 lbs. of super honey. But I am sorry to say there is no real market for honey in this country, yet I sent a sample of it to a wholesale firm in Dublin. The answer my friend who presented it got was, 'It is certainly the finest sample of honey that ever came before us, but we could only give 6*d.* or 8*d.* per lb. for it, as we can get honey for 6*d.* per lb. in Waterford, that answers us very well now.' Sir, this is very discouraging, as I consider anything under 10*d.* per lb. very low if the honey be good. If there was a fair price for honey in this country I could have a ton of it some years. I was quite astonished when I read in the *Journal* that forty-five tons were got in one district and from the old-fashioned straw hives in a season. Certainly Waterford must be a great place for bees. The most I could get from a straw hive (when I used them) was 18 lbs., but with the bar-frame hives large supers in clean empty combs from the last season, large sheets of comb foundation (15 in. by 8 in.), queen and drone excluders, honey knife and extractor, 200 lbs. is not too much for me to expect from one hive in a good season, and 300 lbs. from the Combination hive. This year I got two natural swarms, and 120 lbs. of super honey from one hive; from another one artificial swarm and 120 lbs. of super honey (net); one collected 60 lbs. in ten days, the other 50 lbs. in seven days. The comb-foundation I had from Mr. Kinner West, Newport-on-Tay; it was first-class, and I found that 15 in. by 8 in. was the best size for the Standard hive.—Br. J.

P.S.—I hope Mr. White of Waterford will have the honour of getting up the first bee show in Ireland.

MEAD.

Mr. Symington's receipt for mead given in the *Field*, of August 10th:—

'Boil for one hour 26 lbs. of honey in 6 gallons of water, and remove the scum as it rises, then add 3 oz. of hops, and strain into a vessel to cool. When milk-warm stir in a tablespoonful of yeast, and let it work twenty-four hours; skim off the yeast and put the liquor in a barrel, and fill up daily as it works over. Bung down and bottle for twelve months, adding half a wine-glass of brandy to each bottle. The result was a very clear-drinking vinous liquor, very different from the cloying sweetness of the majority of the samples.'

You will see by the enclosed receipt of Mr. Symington's mead, that it differs very much from what you have published. It differs in—2 lbs. of honey, time of boiling, five spoonfuls of yeast, half bottle of brandy, the time to apply the brandy, the time to bottle.—CAPT. C. A.

[NOTE.—We cannot account for the discrepancies. Our version was received direct from Mr. Symington, at his own residence.

The mead took prizes as under:—Silver medal at Edinburgh, 1877; silver medal at Dumfries, 1878; silver medal at Kensington; bronze medal at Kensington; silver medal at Glasgow, 1878.—ED.]

COMB-FOUNDATIONS.

In the November number of 'our *Journal*' Mr. Procter gives his experience of the value of machine-made comb-foundations as an auxiliary in an apiary intelligently managed. Having largely used Mr. Raitt's comb-foundations for the last two seasons, I

can fully endorse Mr. Procter's experience as to its value. And now that we are into the 'dull time' of the season will you kindly grant me space to give your readers the result of my experience with comb-foundations, so called in general, and genuine comb-foundations in particular?

Genuine comb-foundation is made from sheets of wax passed through a pair of rollers of type-metal hand-engraved, and set so as to produce the bases of the cells on both sides of the sheet exactly the same as in a natural sheet of comb. In Vol. III., January Number, 1876, page 169 of *Journal*, you give the best description ever written of comb-foundation in describing the sample sent you of Long's honeycomb-foundation. With your permission I shall give the quotation in full, for it deserves to be repeated:—'This wonderful American production far surpasses anything of the kind ever attempted in England. We have been favoured with a few sample sheets which are of wax of the purest whiteness, and in comparison with them, our best specimens of *impressed* wax-sheets are *nowhere*. In this new production the mid-rib, composed of the well-known lozenge-shaped plates (three of which form the base of each cell) is as thin and perfect as the bees themselves make it; but the walls—*the foundations* only of which are laid—are about ten to twelve times thicker than the bees require them to be, but contain as nearly as possible the correct amount of material required to complete the cells. All the bees have to do is to soften the wall foundations and enlarge them. No time is lost in wax making—the bees are saved that exhaustive labour, and their owner the excessive cost of the honey usually consumed in the process.' This then is comb-foundation as it was at that time, and as it is still with two important exceptions. When the idea struck the Yankee to engrave rolls to make artificial comb another bright idea also struck him: 'Why not make the cells a little larger than the natural size, and give the bees room to grow bigger—thus let us increase gradually the size of the cells, and let us get big bees that will whip all creation?' In this case our American friend had reckoned without his host, for the bees were puzzled with the unnatural size of the cells, and the queen would not lay in them.* That pioneer of practical theology and apiculture, A. I. Root, took the matter in hand, and with his usual 'cuteness, soon saw that no foundation but the natural sizes would do. He therefore got rolls engraved to the natural size. This was agreeable to the insect's instinct and understanding, and bees and queens took to this foundation at once, and it became a glorious success. The other exception is the whiteness of the wax. In bleaching wax, either chemically or by exposure to the sun, the oxidising process alters the constituents of it to a certain extent, and the bees do not like it so well. It was soon found that the bees preferred wax in its natural colour, and that they made it white for themselves, and in their own way.

* Dr. Long's foundation gave 14 worker-cells to three lineal inches; naturally they average fifteen, or, as we have so often quoted, 25 cells to the square inch.—Ed.

All comb-foundation is now or ought to be made from pure wax of the natural colour, and the cells are of the natural size adapted to the bees' intelligence. In an apiary the advantage of this 'wonderful production,' as here made, is indispensable and invaluable. Next to the bar-frame hive, as perfected by yourself and from your own teachings, Mr. Editor, this is the greatest and most valuable invention in bee-keeping of modern times.

When a swarm is hived into a bar-frame for the first time, it is easy enough to ensure the commencement of the comb along the middle of the top bar of the frames—by placing the hive properly and putting a thin strip of wood or wax along the middle of the bar. This will guide the bees to begin building in the proper place. As the building proceeds it is found that the combs often get wavy and out of the true direction. Parts of the comb, perhaps the very centre of them, are drone or store comb, a sudden rush of honey having induced the bees to build this store comb. This is only well so far, for if such a colony is kept as it is for stock, those patches of drone-comb scattered here and there amongst the worker comb are very much against the future prosperity of the colony, for they will retard its progress next season. As a rule bees build too much drone-comb in a hive the first season. The waviness and probable crookedness of the combs nullify also the benefit of the interchangement of the frames.

In place of the strips of wood or wax let us put a sheet of the aforesaid comb-foundation into each frame before hiving the swarm. The bees at once set to digging out and lengthening the cells, the bases of which are already laid. In a few hours the queen is laying eggs in them, honey and pollen are being stored, and in from eight to fourteen days, according to the state of the weather, the hive is full of beautiful comb, every cell fit to rear a bee, and every frame of comb as straight and symmetrical as if they were cast in a mould. It has been found, however, that a stock consisting thus, of all worker comb, is not altogether in a normal condition. When the bees require to rear drones the following season, they will tear down some of the worker-comb and build drone-comb in its place. To prevent this extra labour, it is best to cut away an inch or two of the lower corners of one or two of the sheets in the outside frames, where to a certainty the bees will build drone-comb. We have now a colony of bees whose condition for future prosperity is simply perfect. Middle frames all filled with worker-comb, and the drone-comb being where it ought to be, in the lower corners of the outside frames, and just as much of it as the bee-master considers good for the stock and sufficient to satisfy the instinct of the bees.

All bee-keepers are aware that a very serious drawback on the moveable comb system is the uncertain way that bees, if left to themselves, build the combs in the frames, making them difficult to be interchangeable. By the use of comb-foundation, as I have shown, this difficulty is completely surmounted, for every frame of comb is straight and true; and, as a matter of course, interchange-

able throughout the hive, and every similar hive in the apiary. Altogether a colony thus formed is in a higher state of perfection for its well-being, prosperity, and utility than one left to build comb according to its own caprices, or as the state of the weather guides them. I have several colonies in my apiary similar to the one just described, whose extra results this past season, owing to their extra efficiency, have left pleasant reminiscences in the shape of extra hard cash, which comes very opportunely in these hard times.

With comb-foundations, in good seasons, valuable stocks can be built up with a mere handful of bees. During the swarming time this season I took two frames of brood with sealed queen-cells and adhering bees, and put them into a new hive on a new stand. I gave them three frames of foundation, one between the two combs, and one on each side. I put two frames of foundation in the hive from which I took the two frames of brood. This nucleus hatched out a queen, extended all their foundations, and in a fortnight or so, when the young queen began to lay eggs, I gave them other three sheets. At present I have two stocks made up this way which I would not exchange for any natural swarm that ever was hived. The last defect on the bar-frame is now removed, for by the aid of comb-foundation the moveable comb system is perfect. Ah! we want yet the power to control swarming. Who will discover *it!*

Permit me now to jot down a few sentences on the sham comb-foundations which are vaunted about.

If it was not that a plaster cast affair took a prize as a new invention at your last show, it would not be worth while referring to the matter in an article on comb-foundation for anything produced by a plaster-cast, either by brushing, dipping, or pressing, is the veriest counterfeit that could possibly be made.

Upwards of three years ago, at the Crystal Palace show, I saw Mr. Cheshire exhibiting *his* mode of putting guides on frames with the plaster casts, and I was delighted. I came away with my head full of ideas about the ways and means that this then new affair could be improved and utilised for making impressed sheets. After trying it in many forms I found that the thing was useful only so far as a mere guide along the middle bar was concerned A line of melted wax poured from an Abbott smelter would do just as well, and with far less trouble. By dipping the plaster cast the sheets are impressed in a sort of way on one side only. Molecules of atmospheric air intervene in the interstices, as Mr. C. would say, which prevent the impression from being correct. The consequence is that, as a rule, the bees begin to build their comb on the face of the sheet, and will build any sort of comb, either worker or drone. In place of them being an advantage they are a positive disadvantage, for those thick, clumsy sheets of wax actually retard the work of the bees in getting their hive filled with comb.

Many others have been working out this plaster cast affair, for I saw in a gentleman's apiary last year a fine impressed plaster cast apparatus discarded, and set up as a flight-board in front of a bar-framed hive—the best use it could be put to, for they make splendid flight boards. Believe me, Mr. Editor, if the plaster cast stuff affair could be made anything near like a success, it would have been introduced long ago. Is it not a most incomprehensible thing that your judges had erred so far as to award a medal to it when an American machine was standing beside it? Mere dipping, pressing, or moulding will not do, the side rib is left too thick, and the indentations are not clearly enough defined for the artistic mind (so to speak) of the bee. The wax is also too hard; it needs the *mastication* of the engraved rolls to make comb-foundations really workable for the bees.—J. S., *Arbroath.*

STOCKING BAR-FRAME HIVES FROM SKEPS.

New Idea of Queen-raising.

As, in consequence of your note in last *B. B. J.*, crediting me with much of the success of W. Mann, Blairgowrie, in obtaining such magnificent results from his half-crown skep, I have been applied to for details as to his *modus operandi*, I think it may be of advantage to publish what I have to say. Allow me, however, to disclaim all credit in the matter. Willie is an original, and though he may have received first hints from me, the results he has obtained are entirely due to his own skill and attention. In several other operations this season he has shown himself wiser than his teachers. For example, he obtained from me an imported Ligurian queen. When I delivered the box I told him I had it working for several days outside my parlour window, and that the bees had been busy carrying pollen through the three-eighth inch hole I had bored in the box. Willie took the hint, and after removing the queen, set the box in his garden and allowed the bees to rear a queen from the eggs then found in it. Of course there was a pretty good stock of bees in the box, and the season was favourable. In due time the young queen was fertilised and laying. His success led him to start several other nuclei in similar discarded queen-boxes, and in every case obtained a fertile queen. He even built up these nuclei into a stock. There is a hint worth noting.

These queens played an important part in his operations with the skep, which were as follows:—Early in the season, when, by stimulative feeding his skep had become full of bees, he set it over a bar-frame hive filled with comb-foundation and one or two bars of old comb. As soon as he found the queen laying below, he removed the skep to another similarly furnished bar-frame hive, giving it at the same time one of these young fertile queens. In a week or two the process was repeated, the result is that he now has four bar-frame stocks, and one skep all strong, besides 173 lbs. taken in supers from the first of these, and a large quantity of extracted honey besides—all this at an expense of half-a-crown for the original 20 lbs. of sugar, and 4 lbs. of comb-foundation. At the annual supper of the District Bee-keepers the other evening, Mr. Mann gave the following advice to an inquirer

as to his methods, and you will see that it bears the stamp of common sense—'Keep good young queens in your hives, feed liberally in spring, and don't grudge a few shillings in comb-foundations.' Mr. Mann is a working mason, and from a few stocks of bees in a very small garden, without losing a day's work, has cleared between 30*l.* and 40*l.* this season from honey, besides increasing his stock about threefold. Who can beat this?—WILLIAM RAITT, *Beecroft, Blairgowrie, Nov. 15th.*

THE ADVANTAGES OF MIXED EXTRACTION.

With reference to your remark in the September number of this *Journal* on the superiority of bees of mixed extraction, allow me to remind your readers that the same fact holds good throughout the whole organic kingdom. Grafting and crossing are the very reverse of in-breeding, and as such are the cause of all improvement.

Lord Lytton, in one of his novels, remarks that nations seem incapable of making a stir in the world until they have assimilated among themselves vast numbers of foreigners. He points out that the French, as a purely Celtic race, were held of no account in Europe, but when they had been invaded by German marauders to such an extent as literally to change their name, they rapidly rose to the dignity of a leading power.

Macaulay too reminds us that by the amalgamation of races in this country in the early part of the fourteenth century, it was soon made manifest, by signs not to be mistaken, that a race had arisen inferior to none which the world had ever seen.

Many of our novelists tacitly acknowledge this fact by making their leading characters of the mixed type. The heroine in *Vanity Fair* is avowedly half French, and Captain Strong in *Pendennis* is portrayed as a Spanish-looking man, speaking that language to perfection, and bearing the impress of Southern blood in his handsome and courtly figure. And whenever any emergency arises, the natural cry that rises to every one's lips is 'Send for Captain Strong!'

But even in cases where this superiority of mental attributes is not so conspicuous, the bodily powers gain an extraordinary increase of vitality. The keen enjoyment of life in some of its lower aspects is so remarkable in the half-castes of the West Indies, for example, that the saying has become proverbial: 'God made white men, and God made black men, but the devil made the half-castes.'

In short, the infusion of fresh blood imparts an elasticity, a vigour, and a capacity for work far exceeding the powers of the parents themselves, and your observations on this point as applied to bees are undoubtedly worthy of serious attention.—C. O. —*Isleworth.*

BEE-STINGS.

Can you inform me if it is usual at this time of year to feel the effect of bee-stings received long ago, and if there is any known remedy? It is now three months since I was stung, and at times have very unpleasant irritation accompanied with large, hard swellings if at all rubbed.—G. T.

[On receipt of the above we asked for further particulars, in the hope that some medical authority might throw light upon the subject, and have received the letter published below.—ED.]

Thanks for your letter. The effect of the bee-stings of last year showed itself on the stomach; on each side was a rash, the signs of which are still to be seen; but this year the irritation is different, being in the arms, legs, and shoulders, on the back, and in fact all over me. It is generally when warm in bed, I wake up as if being bitten by fleas, and when I scratch or rub the part, it rises up in long, hard streaks which are hard and several inches long. I do not recollect being stung anywhere but on the hands, excepting once on the thigh. I should prefer my name being left out as possibly it might be thought I had the itch. When stung I do not feel much the effects, sometimes scarcely anything. I used to put the juice of tobacco, but lately I have used sal volatile and liquor potassæ.

BLACK *v.* LIGURIANS.

I inclose my subscription to your valuable *Journal*, which I trust may continue to increase its circulation and give advice and assistance to bee-keepers for many years. I have often wondered that you have not, with your vast experience, published a book on bee-management, which shall be a *vade mecum* to all bee-keepers—the English 'Langstroth on the Honey Bee.' I see one of your correspondents is not quite satisfied with his Ligurians, and asks for the experience of others. I am exactly of his mind in thinking that the Ligurians are not better workers than the blacks. I have found it to be the reverse. One artificial swarm I took (blacks) in the beginning of June, quickly caught up and passed three Ligurian swarms a week older, both were strong swarms, the Ligurians were those I had from you. Unfortunately the black queen died, so I added a Ligurian. The blacks are, so goes my experience, more active and earnest in whatever they take in hand, working, or robbing, or stinging. I have only one swarm of black bees, but they are flying everywhere. If I happen to leave open the door of shed where my old combs, syrup, &c., are kept, in a very short time the blacks find it out and are there in full force, whilst only a solitary one or two of the yellow-backs take part in the raid. It is impossible to open a hive of Ligurians without a black bee finding his way in, but the Ligurians have to think twice, and keep a sharp look-out before they can get into a hive inhabited by blacks. For the same reason they are more difficult to manage than the more tractable foreigners, for if you disturb them they fly at you furiously, and resent the interference 'with a will.' Whatever they do they do with all their might.—A LONDON BEE-KEEPER, *The Poplars, Seven Sisters' Road.*

BEES SELECTING A BAR-FRAME HIVE.

Some of your readers may be interested in the following account of a swarm of bees selecting for

themselves a bar-frame hive. In June last my apiary was composed of five bar-frame hives standing side by side, and a sixth hive without bees containing three bar-frames of empty worked comb, two or three empty bar-frames, a quilt loosely placed on the top, and the usual top or cover to the hive. This hive has been standing in this condition ever since the loss of the bees early in the spring, when they died through weakness caused by exposure during the severe gales of last year. On 25th June at mid-day, I went to look at the bees and found them working busily, as they had been during the recent fine weather, and with nothing unusual to notice in their behaviour, and certainly no indications of swarming in either of the hives.

Returning home much later than usual I did not see them again until 8 p.m., when I was somewhat surprised to notice a large number of bees passing in and out of the ventilation holes in the top of the empty hive before described, the entrance to which was entirely closed as it had remained for a long time.

On taking off the top to see if there were many bees inside, some thousands fell from it in a large heap upon the ground, and I then found that there were an immense number still left in the top, and also that the frames inside the hive were crowded with bees. I immediately concluded that I had been favoured with a swarm from one of my own hives or some other quarter, and lost no time in proceeding to business. I first placed the hive-top upon the ground in such a position that the heap of bees lying there might easily reach it again, and in a few minutes they all entered it. I then turned up the top and taking off the quilts shook all the bees I could down upon the frames, and again covering them up placed the hive-top upon its end on the ground. All this time the air was full of bees, and the cheerful humming that usually attends a swarm could be recognised at some distance. On looking into the hive-top again in a few minutes I found a number more bees had entered it, and the air was much quieter. Shaking these bees out upon a sheet attached to the alighting-board, in a quarter of an hour every bee had entered the hive, so filling in the required number of frames, and giving them a bottle of syrup, I left them to try their first night in their new home. I should mention that when the hive-top was cleared of the bees I found that they had already commenced to build comb therein. I take it that this instance of a natural swarm selecting a bar-frame hive as their home is somewhat remarkable and worth recording.

I am sorry I have nothing special to communicate in reference to this particular hive. I took about 15 lbs. of honey from it with the extractor, and the hive is now fairly full of straight comb, mostly worker, and sufficient honey for the winter. The past season in this neighbourhood has not been a good one. Very little, if any, super honey has been obtained.—G. N. P., *Nov.* 18.

P.S. Have any of your readers tried this season the 'new idea' set forth at some length in your columns last autumn; if so it would be interesting to know with what result?

WOLVERHAMPTON AND STAFFORDSHIRE BEE ASSOCIATION.

Seeing the affairs of the above Association mentioned in your *Journal*, I think the letter below, which was sent to the members, will explain how matters stand, and I hope you will give it insertion in your next issue.—Jas. Woodward, *Secretary.*

In May of this year a letter was addressed by us to members of the Wolverhampton and Staffordshire Bee Association, asking whether they were willing to make a donation towards a prize fund for this year's Show, or to guarantee a small sum in case of a deficit, and stating that your Committee did not feel justified in making arrangements for a Show unless they were guaranteed against loss. The balance-sheet for last year was forwarded to you at the same time, showing a debt to our late treasurer, Mr. G. Lewis, of 5*l.* 18*s.* 3*d.*

The amount of response to this appeal is represented by the following:—Donations to Prize Fund, 4*l.* 5*s.*; Guarantees, 10*s.*; Donation towards Debt, 2*s.* 6*d.*

The Committee were therefore obliged with regret to give up all idea of holding a Show this season. If, however, all the members of the Association will be kind enough to pay up all their arrears of subscription (which has not even yet in all cases been done), the Committee will be able to repay to Mr. Lewis all, or almost all, that is due to him, and so to start in 1879 with a clear balance-sheet, and with better hopes of successfully continuing the work of the Association.

We are, your obedient servants, J. E. Briscoe, President; Jas. Woodward, Secretary; William J. Frere, Treasurer.

[Note.—This undoubtedly explains the position of the Association, which is sufficiently deplorable, but it by no means shows the influence exerted by 'foreign bogeys' (so called on p. 133) in bringing it about. Nothing, we think, is so likely to cripple local enthusiasm, as to see the prizes offered to stimulate local enterprise carried off by foreigners, whose localities give them superior advantages.—Ed.]

HIVES WITH COMBS AT RIGHT ANGLES TO ENTRANCE.

A neighbour of mine has a bar-frame hive of this description. It is a single walled hive about 14½ by 15 inches and 10 inches deep, set under a small shed of rough boards to throw off the wet. It was tenanted in the fall of 1876, being a stock transferred from an old straw skep. Owing to loss of queen, or neglect of some sort, the bees dwindled and died out the following spring. In the swarming season of 1877 two second swarms were joined and put into it.

The old combs being left to them and two or three of the empty frames were filled with comb-foundations and given to them. They filled out the frames with comb, and were fed at the end of the year (as all other stocks had to be in the bad season of 1877) till they had sufficient provision for winter. Early in June last the hive was filled with bees and brood in all stages, and a large sectional super was put over them which they speedily filled, and then threw off a large swarm.

To prevent any more swarms the queen-cells were all cut out but one, and a second super given which they also filled. The two supers contained 52 lbs. of pure honey-comb, well sealed and filled. The owner says, 'This is the best hive he has. It is the right sort to do the work.'

I have examined the hive to-day (20th Nov.), and I find it contains nine frames, and with five seams of bees. The front side of the comb next the entrance has no honey in it. Between the first and second combs is the first seam of bees with honey only in the top corners of the frames. The next four frames are nearly half filled with honey, and the bees densely packed between them. The three backmost frames are fully half filled with sealed honey except the outside of the last frame, which to all appearances have been emptied recently by the bees. It is evident that the frames being thus placed against the entrance is not any disadvantage to the prosperity of the colony, for altogether this stock is at present in as good order and condition as any stock in the country.—J. S., *Arbroath*.

[An Algerian correspondent states that frames across the entrance are called warm frames, those lengthwise are called cold ones.—Ed.]

SKEPS AND BAR-FRAME HIVES.

(*Concluded from page* 136.)

Hitherto I have compared the skep and bar-frame on the point that what is possible in the management of the latter is also possible in the management of the former. There are, however, important advantages and facilities which the moveable comb principle gives us, that are not at all possible with a hive of fixed combs; for instance, the smallest pieces of comb can be utilised, for they can be stuck in the frames, thereby securing to the bees a saving of time, labour, and honey. A swarm put into a hive thus more or less furnished, is far in advance of another put into an empty hive. When the combs are once broken out of a skep they are only useful for melting into wax, which is a great loss to the bee-keeper.

A bar-frame hive can be enlarged or diminished according to the strength and number of the population by the use of moveable division-boards or dummy frames.

The dimensions of a hive ought to be always in proportion with the strength of the colony. In early spring the hive can be contracted to the number of combs the bees occupy. This concentrates and utilises the heat, thus enabling them to breed faster, and as they increase the dummy is pushed back, and an empty comb given them. To push a swarm to the utmost in building comb, slide the full frames aside and insert an empty frame between.

Previous to hiving a swarm the frames are prepared with sheets of embossed wax or with comb-foundation fixed along the middle of the underside of the top bar. The bees take advantage of this foundation, and begin at once to construct their cells from the bases laid in the wax sheet for them. These guides insure the building of the combs straight and true in the frames, a very important matter, for if we do not secure straight combs in bar-frames so as to leave each frame singly and moveable and interchangeable at will, the hive becomes to all intents and purposes of no more advantage than a wooden box or straw skep.

By the use of moveable comb-hives the production of honey is carried to a maximum. The extractor enables us to empty the combs of their honey without any damage, and return them again to the bees to be filled. There is thus no loss of time or honey in the building of comb, an advantage of no mean importance when we reflect that it takes from 15 lbs. to 20 lbs. of honey to make 1 lb. of comb. To enable us to carry out this plan to secure results which never have been nor never shall be obtained by skeps, in fact, such an amount of surplus honey as the most sanguine skeppite never dreamt of in his philosophy; suppose, towards the commencement of the honey season a bee-keeper has two bar-frame hives, strong and populous in bees as they ought to be, every frame being filled with brood in all stages, and he wishes to work these for extracted honey. In the middle of a fine day when the most of the bees are working abroad, open up one of the hives and lift out frame by frame into an empty box of the same size as the hive, but without top or bottom, search for the frame the queen is on, and return it to the hive and fill in with empty frames and close the hive. Now take frame by frame out of the box, and brush all the bees off them in front of their own hive; return the frames of comb to the box, open up the other hive, take out the frames of honey-comb, if any, at the sides, and put frames of brood in their place.

Put the box filled with the frames of the comb on the top of the hive, and lay the carpet and quilt on above it. You have thus a two-story hive filled with combs and brood; the bees will ascend to the upper story or box, and hatch out the brood in it, and fill the empty cells with honey, which as often as filled and capped over, is extracted by the extractor, and the emptied combs returned to the bees to be filled again and again emptied as long as the honey season lasts. Where 100 lbs. of honey are possible by any other means, this method will give 300 lbs. to 400 lbs. or more, besides 30 lbs. to 50 lbs. of super honey from the swarm, and a box of empty combs to start a swarm next season.

Natural and artificial swarming can be practised on both skeps and bar-frames, and are the only ways of increasing bees generally known in this country.

There is, however, a third method called the 'nuclei mode of increase,' only applicable to moveable comb hives, and said by those in America who have tried it, 'that it gives greater success than either of the other two.' This plan is thus described in a recent number of the *American Bee Journal*:—

'As soon as your hives become strong, and honey is gathered, take the queen out of the hive in which you wish to raise queens. If one hive is not sufficient use another. After the cells are eight days old cut them all out and put them in a queen nursery to be hatched. If you have forty hives then put nine cells into your nursery (always keep one extra), or for twenty hives put in five cells. Start new cells every week as long as you wish to increase, which can be done while the bees gather plenty of honey. As soon as your queens hatch begin at one end of your apiary, and take one frame of brood from each hive as nearly capped over as it can be got with adhering bees, but be careful not to take the queen out; have ready an empty comb to replace the one taken out, and if not an empty comb give them a frame. Continue in this manner until you have taken five frames of brood, then put them in a hive and place them where you wish them to remain. Now get a queen from your nursery, put the queen in a cage and introduce her to the nucleus, let her remain for one day then let her out as quietly as possible. Continue this operation till you have gone through all your strong hives, and continue it every week so long as you wish to increase and the bees are getting plenty of honey. The hatched queen will be laying eggs in from six to ten days, the brood will be hatching, and by this time you will have a good swarm. The parent hives are not perceptibly weakened, your nucleus has its hive half full of comb, and in a week or more will be full. There has no time been lost in the old hive by the absence of a queen, the loss of brood is not missed, the yield of honey is not lessened, and it gives the comb builders a chance, and your nucleus at the end of two weeks is in just as good a condition as by any natural or artificial swarming.'

The moveable comb principle enables us to prepare our stocks to pass the winter safely. Besides shelter and protection from wind, rain, and snow, the necessary requisites are a good cluster of bees, plenty of food both

honey and pollen, proper ventilation above to allow the foul air and moisture from the bees to escape without making a cold draught. This is most effectually attained by ths use of the quilt, which can be made of any material of carpet, but I prefer jute—what is known as stair carpeting. It is cheap, light, hard, and smooth, and the bees do not propolise it much. The right way to make a quilt is thus:—Take a piece of jute carpet the width of your hive, and double the length, cut through the middle and sew and bind it neatly, and stuff to an inch or so thick with broken horsehair, dried fibre, moss, or any open, porous, warm substance. Under this and above the frames lay a single square of the carpet, and above all the hive cover and roof.

The moisture, &c. from the cluster evaporate slowly through the quilt, and are dissipated above, leaving everything dry, snug, and warm inside the hive, and the bees come out in spring strong and healthy.

A bar-frame hive need not be an expensive affair, for bees will not return one penny for extra expense. A box without top or bottom of well-seasoned wood square at the corners, and firmly nailed together, and light frames of wood $\frac{3}{8}$ in. thick and $\frac{7}{8}$ in. wide, nailed at the angles so that they will hang true when placed in the box, is all that is required with a floor-board quilt, and a cover or roof to protect all from the weather.

In making bar-frame hives it is necessary to remember that the outside measurement of all frames, and the inside measurement of all hives must be uniform. The frames should be $\frac{3}{4}$ in. less than the hives in length and depth so as to leave a space of $\frac{3}{8}$ in. all round, for this is the distance that allows of the easy passage of the bees. If the space is less than this, the bees will glue it with propolis, and if it is larger they will build bits of comb in it which will nullify the mobility of the frames. *

When placing the frames in the hive a distance of $1\frac{1}{2}$ from centre to centre is correct, but $\frac{1}{4}$ in. nearer or farther apart will not make any difference.† Every frame ought to be made so that it will fit properly in any hive in the apiary, for the successful management of bees depends on the facility with which the combs can be changed from one hive to another.

In conclusion, I would advise every one who keeps bees to study their instincts and habits, and whatever sort of hive you use, whether bar-frame or straw skeps, let it be adapted to the nature and needs of this industrious little insect.

In bee-keeping the success of every system depends upon *keeping stocks strong*. One of the greatest secrets of successful bee-keeping is comprised in Oetl's golden rule, 'KEEP YOUR STOCKS STRONG,' and if you wish to continue successful, *keep none but strong stocks*. Remember that the quantity of honey collected by bees is in proportion to the number that can be spared to gather it. It is easy to understand that 40,000 bees will collect ten times the quantity of honey that 4000 will, hence the importance of strong and populous colonies. We often hear a man boasting of such a number of swarms from one stock. All that is proved by this is the fact that a thriving colony has been weakened by so much subdivision, and most probably it is ultimately ruined, and everything is blamed for the loss but his own stupid mismanagement. The more a man keeps of those handfuls of swarms in those small miserable skeps, the poorer he will become; so *keep your stocks strong* if you wish to reap both pleasure and profit from your bees.—J. S., *Arbroath*.

* We do not concur in these measurements. *Combs* should be $\frac{3}{8}$ to $\frac{1}{2}$ an inch apart, that bees may pass back to back; but round the ends of frames a qarter of an inch space is ample.—ED.

† This is evidently intended to allude to frames in supers. In hives correctness of measurement is imperative.—ED.

APICULTURE.

A paper read before the members of the North of Scotland Bee-Keepers' Association, by Mr. A. J. ANDERSON, *Tullochleys Cluit, Aberdeenshire.*

It may seem somewhat presumptuous in me, who have had but a limited experience in apiculture, to teach you gentlemen, some of whom I have little doubt are better qualified to impart instruction to me; but my principal object in penning and reading these lines is to open up the way for a discussion of the subject generally.

The points I have taken up have a direct bearing on the interests of our Association; and should I so far interest you as to call forth your various views and opinions, the object of my paper will be gained. I presume that all present are more or less acquainted with the principles of our Association, which aims at the enlightenment of bee-keepers on the elementary principles of profitable and humane bee-keeping; to teach them that, by combining the industry of the bee with skilful management on the part of the bee-master, and by the introduction of the moveable comb system and modern apicultural implements, better results can be gained than on the old 'let-alone system.'

Politically speaking, bee-keepers are divided into two classes—Liberals and Conservatives—and these again may be said to be subdivided. In the former class we have the scientific bee-master, whose aim is to investigate the hidden mysteries of the bee-hive, and by experiment and careful study find out and explain the laws which govern its internal community, and to show the connexion which exists between cause and effect.

Again, we have the experienced bee-master, whose aim is to put to practical account the discovery of his scientific compeer, and take advantage of the knowledge thus gained.

While, on the other hand, we have the old-school bee-master, who determinedly opposes any new inventions, and doggedly adheres to the customs of his forefathers, unwilling to move out of the old ruts and tracks, which have been cut out for him, and handed down as laws unalterable from generation to generation. Such bee-keepers are either too lazy to keep pace with the times, or else have too much conceit to make the attempt, and are generally on the alert to ridicule any new discovery, and oppose anything which might seem an invasion on the old customs and systems of management. It is with this class of bee-keepers that we, as a Society, have to deal. Our motto is progress, our aim to dispel ignorance and superstition.

Bee-keeping, whether engaged in as a pastime, or as an industrial pursuit, presents attractions and inducements, which few other sciences offer. To the scientific bee-master, the internal structure and regularity of the hive present a field for scientific investigation which will amply repay his exertions, while to the practical man, whose aim is to turn everything into cash, there is presented an almost unlimited field for his enterprise. Hundreds and thousands of pounds of honey are annually allowed to go to waste from our fields and our hills, for want of bees to gather it. And what is the reason? Why do we allow so much wealth to go to waste? Why bee-keeping is not more pursued in this country is owing to the fact that our honey-season is so short, and our springs so cold and late, that as a rule our bees are rarely well able to begin to store a surplus before the flow of honey ceases; and thus they often give little return for the labour bestowed on them. However, it has been proved that, even with all those drawbacks, bee-keeping may be made a remunerative industry, even in this cold part of the country.

Presuming, then, that the aim of most bee-keepers is to obtain honey, the question naturally arises how shall we secure the most and the best of it? It is not within the

province of this paper to do more than look at a few points which are conducive to this end.

We must have strong colonies at the proper season, or, in other words, have plenty of labourers to secure the harvest when it comes, without which no bee-keeper need expect great results.

By what means, then, shall we secure this essential? No specific rule, equally adapted to all localities, can be given. The same treatment successfully practised in one locality would, if carried to the same extent in another locality, be productive of much evil. I am of opinion that the wintering of our bees has more to do with our success than is generally anticipated.

It is not enough that we bring them successfully to the sweet spring flowers. How often do we see stocks which were strong in numbers in March reduced to a mere handful by the month of June. What is the reason? *Spring dwindling!* It is a mistake to conclude that the earlier and the harder our bees work in the spring, the more likely are they to be profitable to us. My own opinion, gleaned by observation, and confirmed by experience, is that bees in this part of the country ought to be kept as quiet as possible, and not be permitted to go out at all until the month of April, or say six or seven weeks before we may expect the honey harvest to commence.

This can only be successfully secured by indoor wintering, in well-ventilated houses, where they can be kept at a uniform temperature, and quite dark. It will be argued that our winters are not so severe as to necessitate a system of wintering like that practised in some parts of America, where bees are kept in total darkness from November to April. But do not sudden changes of temperature prove as injurious to our bees as extreme cold? I venture to say they do, and although seldom heeded, often prove most disastrous.

During the months of November, December, and January, our bees as a rule are quiet, and do not stir much; but as the days grow longer they become restless, and if at liberty, venture outside, and often to their destruction. Where is the bee-keeper who has not witnessed, to his loss and sorrow, thousands of his bees perished among the snow?

Where bees are allowed to remain on their summer-stands all winter, and exposed to the alluring rays of a March sun, it is almost impossible to keep them inside their hives—out they will be; and if snow is on the ground, cold and damp, they perish in hundreds. But some one may say, do bees breed in confinement? Yes, they do; I have examined hives, which had not flown, from November to April, and which contained numbers of young bees and brood in all stages. The so-called system of 'gentle, continuous feeding' as an inducement to breeding, and so warmly advocated by some of our Southern brethren, is a sure means of obtaining young bees; but if begun too early there is more loss than gain. When bees are stimulated to activity, they must get outside, or they cannot remain long healthy, and we have shown that such excursions are often attended with great loss.

Experience has proved that of all months in the year, the month of May is the most fatal and disastrous to stocks, their stores being exhausted, and often nothing to be got outside they are reduced to starvation point. It is at this season that the bee-keeper ought to stimulate and encourage breeding by giving a continuous supply of food as their wants necessitate, until they can obtain it from natural sources.

The bee-keeper who has his stocks strongest at the commencement of the honey harvest is the likeliest to obtain the most honey, if judiciously managed. But it must be borne in mind that the bee-keeper who gets most honey does not always pocket most money. We often hear of bee-keepers boasting of large yields—of stocks rising to 100 and 130lbs. weight. But ask such parties what they got per pound for their honey? what were the nett proceeds in cash from such stocks?

It is a well-known fact that bees will gather and store as much honey in an old box or skep as in the best constructed bee-hive. Taking advantage of this fact, many bee-keepers are quite content if they get their bees housed at all, no matter in what shape or form; and here it is that we as honey producers fail. We study only our own convenience, and do not take into consideration the connexion that exists between producer and consumer.

So long as honey is bought and consumed merely as a luxury, and not as a staple article of diet, it is evident that only a certain class will be able to buy it.

It is our interest, then, as producers, to study to put up the article in such a state and shape as will meet the requirements of such a class of consumers. As a general rule our honey is bought by honey merchants, who have to retail it in small quantities. It will be evident, then, if we send our honey in large skeps or supers, that in breaking of bulk there must be a sacrifice. But this is not all, the honey thus broken is liable to become sour and mixed with dust and impurities, and cannot be kept long in its virgin purity; the trade is thus injured, those who consume our honey, unless they get it nice and clean, soon gather a dislike for it, and naturally associate it with everything that is foul. How, then, can we mend matters?

We should study to make our bees put up their surplus in small packages—small boxes, or sections, as they are called—containing say from 1lb. to 8lbs. each; not expensive boxes, but neat, tidy things, in which the honey can be handled in safety and retailed without necessitating the breaking of bulk. By sending our honey thus to the market, a higher price would be got, and a readier sale effected; the retail merchant would suffer no loss in breaking of bulk and exposure, while the consumer would receive an article which he could handle and examine in safety.

Again, as producers it is our duty to study to bring the pure article before the public to show them what pure honey is, and endeavour to create a greater demand. Our business men spare no pains to make known the quality of their goods, they display them in as attractive a style as possible, and in such a manner as to catch the eye of the passer-by: might we not imitate them? Could we not, as a society, make arrangements with some merchant, say in Aberdeen, who would be willing to undertake to sell all our surplus honey on commission, and display it in his windows? or might we not start a honey-market, engage a stand in the New Market, Aberdeen, and get a duly qualified person to undertake the duties of salesman, and let him push the trade like other business men: engage a traveller, if he chose, to go through the city and show his goods in every house, and thus bring the article before the public.

I see no reason why pure honey should not be sold side by side with butter. The great drawback and hindrance to success in selling our honey is that thousands of pounds of inferior stuff are annually imported into this country at a cheap rate, and consumers, imagining that all honey is alike, naturally purchase that which costs least. If such a scheme were set on foot and proved a success, our hive manufacturers could exhibit specimens of their workmanship, and all our apicultural implements could be bought, sold, or exchanged in our markets.

There still remains another important subject to be looked at—our bees. Is it possible to improve them? can we, as bee-masters, enhance the value of our bees as honey-gatherers? This question has been the subject of much debate and controversy; some have said all bees are alike, one kind is as good as another. Such remarks betray ignorance and want of thought. I firmly believe our bees are as susceptible of improvement as any of our domestic animals. Compare our best breeds of cattle with what they were half a century ago and say, is there no

improvement, has nothing been gained? If, then, such perfection has been arrived at by careful and judicious breeding, is it not worth while to make the experiment with our bees? By introducing fresh blood into our apiaries, thereby giving new vitality, by rearing queens only from strong and healthy colonies, and by guarding against 'in and in' breeding, I firmly believe that it is possible to so improve them as to make them much hardier, and capable of living longer during the working season. Our American bee friends teach us a lesson in this; they annually import hundreds and thousands of queens from Italy, for the purpose of Italianizing their apiaries, and I believe that it would pay us to do the same. Many in this country have done it, and the almost universal opinion is in favour of the project. As a breeder of Italian bees I have had many inquiries of late as to their merits; hitherto, I have deferred giving an opinion. Although I have had the Italian bee for some three or four years I have not so fully tested them as to hazard an opinion. Having generally studied to multiply them as fast as practicable so as to be able to supply them to others who wanted them, I consequently have not given them a fair chance to show what they can do as honey gatherers.

I have, however, carefully studied their habits and natural propensities, and have arrived at the conclusion that in several respects they are superior to our native kind.

I have found Italian queens, as a general rule, to be more prolific than our blacks, and have been astonished at the almost incredible short period in which they will fill almost any sized hive with eggs during the breeding season. Are Italians hardier than blacks? My conclusion leads me to answer positively and negatively. They are hardier in one sense—that they are capable of enduring harder and longer-continued exertion both inside and in field-work. They seem to be almost indefatigable in their labours, and a given number of Italians will feed and rear more brood than the same number of blacks will. To illustrate what I mean, take two weak stocks, one Italian and the other black, and under the same circumstances the Italians will sooner raise themselves to a populous colony.

On the other hand, I differ from those who affirm they are hardier in the sense that they are capable of enduring a greater degree of cold. My opinion is, they are more susceptible of cold and get sooner benumbed than our native bees. I have also observed that Italians come home quicker from the fields when a shower threatens than do blacks.

One would think, by the manner in which they crowd into their hives, that they come all in one solid mass. Whether to account for this fact on the supposition that they fly faster than the blacks, or that they take the warning and leave the fields sooner, might be difficult to determine; but it will be obvious that by such means they escape many a blast in which thousands of loitering bees are caught and lost. Italians are also less inclined to sting, and much easier quieted during manipulation than blacks. They are also handsomer; but are desperate robbers and fighters, and consequently are apt to attack weak colonies.

These conclusions have been arrived at by personal observation and experiment, and can be substantiated by almost all who have heard them.

By crossing the Italian bee with our native breed we get what are called hybrid Italians—the best bee I have seen, superior in every respect to blacks. As honey-gatherers they have astonished all who have tried them; they seem to be possessed of a strength for work and fresh vitality which blacks lack—this is a strong argument in favour of crossing, or introducing fresh blood, as we say.

We desire to see this system, which has astonished the few who have tried it, practised by bee-keepers in general. If followed out with skill and judgment for a few years a new breed of bees would be established, possessing and combining those properties which are most desirable.

Science tells us that 'close' breeding, or breeding 'in and in,' is followed by most pernicious results: the constitution is weakened, proneness to disease engendered, and the race—whether of animal or insect—becomes vigourless and delicate, and less capable of enduring exertion. My advice to those who would seek to oppose and ridicule the system of crossing is, to be cautious, and allow others who have put the matter to the *test*, and who are speaking from experience, to know better. First prove the matter for yourself, and then you can speak with more certainty, and have a better right to be heard. It is an unwise expedient to rely on the testimony of others for a basis on which to form your own arguments, and it is foolish to reason because one has failed in any enterprise that the principle is at fault. Where one man may fail, another under the same circumstances may succeed. Let us, as bee-keepers, seek to endeavour to learn for ourselves, and then, as promoters of a common interest, impart our knowledge to others, and by so doing we shall not only enrich ourselves, but lend a helping hand to them.

He who with health would live at ease
Should cultivate both fruit and bees.

A bee-tree, recently cut down in the vicinity of Lake Burwell, yielded 150 lbs. of honey.

Bee Masters.—It is a mistake to suppose that bees know their master; the fact is, their masters know them, hence their tractability.

Bee-keeping in Canada.—As illustrating the profits of bee-keeping, Mr. Wm. Pomeroy, of Lakelet, Huron county, who, in the spring of 1876, commenced with one hive, had increased the first year to three, the second year to eight, and this year to eighteen hives, from which he has during the present season had 18*l.* worth of honey.

Geographical Bee.—A 'geographical bee' is one of the latest of social 'fads.' A society has just been formed of persons who, moved by Lord Salisbury's commendation of 'maps' and other geographical appliances, are seeking by meetings at each other's houses to make up for deficiencies in early training. Afghanistan and Turkey are at present the leading 'bee' subjects.—*European Mail, Nov.* 1, 1878.

Echoes from the Hives.

Beverley Road, Hull, 14th Nov., 1878.—Skep *v.* Bar Frame Hives.—'I have a very poor account to give you of my apiary this year, having lost three of the imported queens I got from you, and nearly the fourth also. When I see how populous some hives are on the old "skep" and "take-no-care-of-'em" principle, I am half disposed to return to the old style, although I have had "bar-hives" for twenty-five years, and "bar-frames" nearly ever since my friend Mr. Woodbury introduced them; but I keep hoping for better luck.'—J. R. J.

[This gives us another opportunity of reminding bar-framists of the advisability of introducing fillets of wood or other material between the ends of frames, to prevent the circulation of air, and the consequent dissipation of heat caused thereby around them. We have repeatedly explained that in simple domiciles, whether skep, or box hive, or the frameless Stewarton, the bees build from the roof as far down the sides of the hive as they store honey, so that there can be comparatively no circulation of air or deterioration of heat from the body of bees congregated within the hemisphere in which they have

made their nesting place. In the framed Stewarton, where there are four central frames only, there can be little loss of heat, as the circulation is confined to that number of frames, they often being in an upper storey. In the ordinary bar-frame hive the air is let in at a central part, directly at the ends of several frames, and circulates through and around the brood nest during all sorts of weather in a most unmitigated way, and only by the introduction of slips of wood about half an inch square, and seven or eight inches long, between the frame ends, and the partial closing of the hive entrance, can the evil be remedied. We commend this matter to the serious attention of bar-framists, and ask them to consider whether frames across the entrance would not probably prevent the cold air blowing so directly into the brood nest.—Ed.]

Northchurch, Nov. 23rd.—Please give my thanks to your junior for the clever way and manner in which he transferred the honey and bees out of my straw hive into the bar-frame hive. I have not taken the pieces of tape off which tied the combs into the bar-frames, as I did not know whether I ought to or not. I thought, perhaps, you would like to know how I got on with them. It was quite a success, as it was not only transferring of the honey and bees, but the uniting of another man's bees with mine; I kept them closed in all the first night and next day, the next night I opened the mouth just a little, and in the second morning I gave free access, thinking that there would be a great many dead, and I put an old tray in front to receive them, but, to my surprise, I only found the weaker queen with one or two other dead ones, the rest very quiet and working, a day or two afterwards. I should very much like to have the instructions for the bar-frame hive if there are any as to the working of it.—W. J. S.

[It was highly dangerous to close the hive for so long a time after the union had been effected as it might have led to the suffocation of the whole. Had the bees been aware of the position of the entrance, their endeavours to get out by its means would have caused great mortality. As it was, all being in a new hive with new arrangements, they did not know the way out and did not attempt to use it, and the calamity did not take place. The method of management in bar-frame hives is exactly the same as in others: bees do not feel more highly educated in the former than in the latter, but the bar-frame principle affords more facilities for their supering and handling. You can do with a bar-frame hive all you can do with a skep, in the former the combs are moveable, in the latter they are not; the further advantages of the bar-frame hives cannot be enumerated in a short note, their description would fill a volume. Why not take the *Bee Journal* for a year and learn the whole system?—Ed.]

Bee-keeping in Alsace.—Signs of Advancement.—'I can hardly tell you how much pleasure the present of your hive has given in Alsace, and the interest that it is causing with the Alsatian bee-keepers. It was thought that the best man to have it would be Mr. Dennher, of Enzheim, near Strasburg, who is the editor of the *Alsace Bee Journal*, and a very advanced bee-keeper. He is the schoolmaster at Enzheim. He was deputed to the Paris Exhibition by the Association of Bee-keepers of Alsace, where he saw and admired your hives most particularly. So yesterday I went myself to Saverne, about sixty miles from here, and took the hive so that it might go through the German Custom-house all right, and not get broken. I am sure it will be fully appreciated and fairly tried. I expect some day you will have to come to see the Alsace bee-keepers. They are far more like *English* than *French* in all their ways, being half French, half German, *very like ourselves*, half Norman and half German. No doubt the French Exposition was poor, as far as bees were concerned, but it was certainly a feather in the English cap to get *two* silver medals and a bronze with only *three* exhibitors. You will be interested to hear about your "Little Wonder." I used it to take the honey out of one hive that a farmer close by us had. Well, when I was clearing out my house, I could not find the extractor, and asked where it was. Lo and behold! a peasant living in the next village, who had thirty skeps, and who *destroyed* his bees to take the honey, having heard of it from the farmer, had borrowed it while I was away, had used it to take his whole lot of honey, and was so delighted with it he had kept it to get another made by the pattern. He seemed to think it indeed "A Little Wonder." He never saw anything, he said, so simple and so easy, and he promised to *give me* all his bees next year instead of killing them, if I would drive them. He won't do that twice, I expect, for *he had no idea bees could be driven*, and he is quite sharp enough to want to keep them himself when he sees how easily it can be done. Certainly, the extractor is worth all the cumbrous extractors put together they use here, and they cost forty or forty-five francs, or nearly two pounds each. I was very much pleased to see how very quick these poor people were in taking up the extractor. But the French peasants are a very intelligent lot, and the best people in the country.'—G. P.

Queries and Replies.

Query No. 283.—*Autumn Drones.*—I had a swarm in June last, the queen of which could not fly and was found on the ground in front of the old hive. I kept her till evening when I drove out a swarm, and after placing it on its stand I let her majesty run into it. They did well afterwards, there being 127lbs. in it when I put it down, and there were six or seven queen-cells in it. I put the bees into an empty skep and fed them up with 'sugar-syrup,' of which they took from 4 to 6 lbs. per day till their skep was quite full, but there were always some 'Drones' to be seen in it, and as late as yesterday I saw half a dozen of them, two of which the bees killed. As I understand it, the presence of drones at this late season indicates queenlessness, but would the bees have worked so well in filling their hives, had they been so? I fed up other two in like manner and at the same time, but none of them worked as well as the one in question, although there were no drones in them. The queen above referred to was very old. Does the presence of the royal cells in the hive indicate that she died and that a successor had been reared during the summer? Your opinion and advice in next month's *Journal* will oblige.—John Wood, *Killin.*

Reply to Query No. 283.—The presence of queen-cells in the hive at 'putting down' time, indicated that at a previous period the stock had from some cause become queenless, and the fact of drones being at the present time within the hive conduces to an opinion, either that there is no queen, or if one be present that she is unfertilized. It is further possible that the hive may be troubled with a fertile worker, a pest that the bees believe in, but that, like a false prophet, leads them to ruin. The fact of the bees doing so well after the 'turn-out' may be accounted for, for, having little or no brood to attend to, they were able to fill their hive without hindrance. We advise you to look into the combs, if our suspicion is well founded most of them will be formed of drone-cells and the bees will be far from numerous.—Ed.

Query No. 284.—*Bees leaving their Hives.*—A friend of mine having a large stock of hives, wished me to take two hives from him, and on removing them towards the end of June, about ten o'clock at night they began with their buzzing noise; but on the morning following, when

the sun began to rise, nearly all the bees left their hive and went back to their old home, but finding their old cot was gone, they began to take possession of an old hive, where the bees had gone dead in the winter. So they began to carry all the dead ones out; so on returning the morning following I saw they had begun to work, and worked hard for a month, and on examining the hive I found that all the bees had gone and left their new home. I wish to ask if you will kindly give me the reason of it. An answer in your next *Bee Journal* will greatly oblige. —GEORGE HODGKINSON, *Whelton, Oct. 26th*, 1878.

REPLY TO QUERY No. 284.—The explanation of the above is very simple: the bees when removed were not taken out of their usual radius of flight—that is to say, they on leaving their new locality found themselves near their old home, and naturally went there, and, finding their 'house' gone, swept away in the night, as it were, they took possession of the only one they could find, and swept and garnished it to make it fit to live in. But, alas! they had no means of existence as a swarm, though each bee lived its allotted term; for, having no queen, and consequently no means of producing progeny to repair their losses, and increase their numbers, they gradually died and dwindled away. The queens of the hives would be unaware of the removal from the original position, and being surrounded by lots of young bees that had not flown, would live on and enable the old stocks to recover their strength; but the latter would be considerably lighter from having lost the honey-gathering services of the lost bees.—ED.

QUERY No. 285.—Having plenty of time at my disposal, I wish to be getting hives, &c., ready for next year. Can you kindly tell me how to get the most super honey, in sectional supers, if possible, being more convenient in that form? I thought of hiving the queen in a *small* box, and putting the sections on the top, with zinc between. Will that answer? Or I thought of making hives like yours (only with single walls, which would do for swarms which are not intended to be kept through the winter), and keeping the queen to two combs on one side. No work would then be lost, as the two combs would come in along with others to fit up a stock hive. I have ten hives now which are all a great weight. I see by your *Journal* that four Woodbury combs are enough for the winter supply. Are my bees worse for having so much in store? If so, is it too late to deprive them?—A. J. H. W. *Ripon, Nov. 5th.*

REPLY TO QUERY No. 285.—If large honey results are expected, it will be comparatively useless to confine the queen to a small box, unless a very large population has previously been reared, and the box made to contain little beside sealed brood. The second plan would fail for a similar reason. The queen should have at least eight Woodbury frames, or six Standard frames, filled with worker brood, and a large population of workers (and some drones), before much super or sectional honey can be expected. Two frames of comb, supposing each to contain a cubic foot filled with worker-brood, only would contain under 15,000 eggs, grub and larvæ, giving an average daily hatch of about 600 bees per day, when there should be at least 2000 per day coming forth to recruit the army of workers in the fields. The art of honey-getting may be told in a few words. Every one fit to be considered a bee-keeper should be well acquainted with the bee flora of his locality, and his aim should be to work his stocks up to their utmost strength beforehand, so that when the blossoms are out the bees can gather and store the honey. In the majority of instances the bees, for want of stimulation, cannot begin breeding *in earnest* until there are plenty of blossoms, and by the time they are strong in numbers and fit for ingathering, the harvest is past, and they, having no other means of getting a living, often take to robbing. Four Woodbury combs of honey are sufficient for a stock to winter on, but the bees require generally as many more to winter *in*. They will be no worse for having a larger quantity of honey during winter, but it should be unsealed in spring, to induce them to use it for early breeding and make room for a large quantity of brood. It is not too late to take some combs away, if they are in frames; but, if in skeps, by all means let them alone until spring as aforesaid.—ED.

QUERY No. 286.—1. In the dove-tailed American sections, of which the tops and bottoms are each quarter inch narrower than the sides, so that when two sections are placed side by side the space between them is of that width, of what depth should the glass-slips be, which are inserted between every pair of sections?

2. In Abbott's Alexandra Super do the glass-slips, which run in grooves in the under side of the top-board, completely divide one section from another at bottom; if so, would not the glass bottom rails be narrower than the distance between the grooves at top?—T. H., *Belvedere, Kent.*

REPLY TO QUERY No. 286.—1. The glass should be about half an inch less in depth than the sections, so as to have a quarter inch above and below for the bees to pass from one to another, and up into a second set above should they be so arranged.

2. The glass at bottom of the Alexandra supers should be only about an inch in width, or the means of ingress would be doubtful if the intermediate glasses reached to the bottom.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

J. H. ELDRIDGE, Esq., of Earlham Road, Norwich, wishes for the addresses of Mr. Knight and Mr. Young, who exhibited honey extractors at the British Bee-keepers' Association Show, at South Kensington, in August last. Perhaps those gentlemen or their friends will oblige the applicant with post cards?

P. O. L.—If you re-read the note at bottom of p. 121 of November *Journal*, you will find that it is not suggested that bar-frame hives can be filled successively during winter by setting full skeps upon them. That in question was taken care of during winter, and '*in the spring*' was set over the bar-frame hive.

HURRIED SIGNATURES.—*To several Correspondents.* The hurried way in which names and addresses are often given leads to many mistakes, and it is not seldom that they are neither intelligible by us, nor by the postal authorities. An address E. G. G. 'Hillden' has been to Hillden and Shildon, and has been superscribed *Durham*, but has been returned to us 'Not known,' while perhaps the correspondent is accusing us of want of courtesy or business punctuality. When fairly puzzled by hurriedly written signatures and addresses we cut them out and gum them to the envelopes, and even then they often come back labelled —Not known—Not found. We should esteem it a great favour if our correspondents would enclose a stamped *directed* envelope: at present we are taxed at the rate of about thirty pounds per year for stamps for replies to queries; which ought not to be, and lose much time in searching for counties and post towns to complete addresses, into the bargain.—ED. B. B. J.

WHICH IS THE BEST?—It is easy for any one to write that his black, or English bees, are better than pure Ligurians, but are you sure that your 'English' have not already been improved by the admixture of Ligurian blood? Many thousands of Ligurian queens have been imported during the past few years, which have been scattered broadcast throughout the land, so that it is a question whether there are any bees in England that have not been influenced by them, or rather by their drone progeny.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 69. Vol. VI.] JANUARY, 1879. [Published Monthly.]

Editorial, Notices, &c.

JANUARY.

This comes wishing all our readers 'a happy and prosperous new year, and many of 'em.' The Christmas just past has been bitterly cold, and a hard time for the poor, both human and apistical, trying them most severely, and testing their resources when through stress of weather they could not help themselves. Happy were they who made (?) hay, and honey when the sun shone; or if variation of the simile be permitted, in regard to humanity, we venture to say from immediate observation that the happier portion were those who had thriftily prepared for a contingency such as was then thrust upon them; and regarding bees we would say that happy were they whose owners were 'wise in time' and prepared them for the dread ordeal which it is always right to expect at the most inconvenient hour, and which came upon us in such terrible force, and with increasing power, that culminated in calamity. Yesternight, *i.e.* Christmas Eve, stands almost unparalleled in memory for its bitterness. Our registering thermometer, on Christmas morning, showed that 31 degrees of frost had been reached during the previous night in our London locality, and elsewhere the figures were considerably worse, and made it terribly hard for the poor bees; and may we again say for poor humans also? There will have been in every apiary, as in every parish, some families that through a chapter of accidents, not of their own, must have come to grief, but for help during the bitter time just past, and probably many have succumbed through the thoughtlessness of those who ought to have given the required aid. Happily we are able to report that not one of our fifty-two stocks has been lost; it would be absurd to pretend that none have *suffered* from the severity of the frost, but only in one instance has there been any appreciable loss of life, and that was through a seam of bees being on the wrong side of a comb which had no winter passage in it, and consequently when the weather caused the mercury and the bees to condense, and the globes to become smaller respectively, the bees on the outer comb were left then to perish. The omission of winter passages is a common fault—many, to save the trouble of making them, lay a stick across the frames, under the quilt, of sufficient thickness to allow the bees to pass over the top bar of the frames, forgetting that at the same time they afford means for the escape of the heat from the clustered bees. The passage should be about three inches from the top of the frame, or, as a rule, about one-third down.

At the break-up of the frost every stock was examined, and indeed during the frost every symptom at the hive entrance was duly considered, and in many instances, as numerous visitors could bear witness, the roofs were removed and the quilts gently raised until the bees were observed compactly clustered, but still on the move, as if each outsider were endeavouring to get within, while those within would not willingly permit the intrusion. It is a popular error that bees during the cold weather are dormant, based probably on the fact that they do not as a rule venture forth, but modern appliances prove the contrary: it is true they do not work in the usual sense of the term, and if sufficiently protected during frost, do not wear themselves out in the production of greater heat than is simply necessary for life-preserving purposes.

Since the memorable year 1874—when the quilt as a covering in lieu of a crown-board for hives was first severely tested, when from the 16th of December to the 1st January following there was continued frost, the thermometer registering 19° on the 31st December, 1874, and when it (the quilt) was maligned by being termed 'a heap of marine stores,' there has been no weather to prove the extraordinary advantages attending its use. Every bee-keeper of seven years' standing will remember the condition of hives after severe frost, before the quilt displaced the crown-board—the reeking

combs covered with mould and dew-drops, the wet corners of the hive, often with ice in them, the crown-board acting likewise as a condenser and dropping water into the clustering bees, causing dysentery, with its usual filthy accompaniments, saturating the floor-board and making the bar-frame hive almost untenable by the bees, and the laughing-stock of old fogey bee-keepers who never could or would believe in anything but the fast-declining skep as a bee-domicile. What a comfort is it then that so great a change has been wrought, that, through the introduction of the quilt* and the general teachings of this *Journal*, all the terrible evils consequent on a frost have been avoided. Of all our fifty-two stocks there is not one showing signs of mouldiness, dampness, or dysentery; and we feel certain that where our teaching has been closely followed other apiaries are in an equally healthy condition.

WORK FOR THE MONTH.

January being a month in which bees should be kept as quiet as possible, little will be required amongst them beyond attending to their entrances and keeping their floor-board clean. After such a severe frost as they have been compelled to endure, there may be dead bees amongst the combs of hives which the surviving bees will, on the return of mild weather, endeavour to remove, and considering that entrances had been narrowed to protect the bees against the cold, care must be taken that they do not block their doorway with dead, and thus cause suffocation of the living within the hive.

Bees are accredited with considerable wisdom, but they have about as much common sense when their entrance is choked, as the people in a theatre or church, when a cry of 'fire' is raised, they rush for the doorway and press and crush until they are quite shut in by those they have killed, and without help from the outside, all would perish.

Tom-tits, the little blue, black, and yellow rascals, often called by other names, are now a great nuisance to bees, worrying at the entrances of hives until the sentinels appear, when, with their sharp bills, they pick them up, take them to a fence or tree, where they pick out and throw away their stings, and swallow the bodies piecemeal. They do much mischief, if allowed, but probably by the consumption of other insects do a great deal of good in gardens and orchards, therefore, if a piece of $\frac{3}{4}$ hexagon wire-work be placed in front of each hive, the would-be bee-i-cide will turn his attention elsewhere; for, not being able to pick up the bee at its first appearance, he will become the object of attack by the insect, and thereby learn a lesson which will teach him as Cowper did the adder when he killed it, 'Never to come there no more.'

Now is the time to provide a stock of hives and supers for the ensuing season. We know from experience that the majority of bee-keepers do not think of such things until the bees begin to show signs of swarming, and then they often have to wait until they are made, and only receive them when the necessity for them has passed, and they have had to make shift with other things.

This reminds us of the wisdom of providing a few makeshift hives in every apiary. Anything that will hold a few of such frames as are in general use will answer the purpose, for swarms are not at all particular, and both the box and frames may be made by any amateur carpenter almost without effort, and during the long winter evenings would form a pleasant amusement. Those who do not care to make such things should order them early, for they are far too bulky for any hive-maker to keep in stock, and in the spring it cannot pay to make them at the low prices at which they are offered by their makers. The possession of a few 'makeshifts' renders the bee-keeper independent of hive-manufacturers in the height of the season, and often avoids the necessity for purchasing more expensive hives, since it often happens that it is as profitable to take the honey and unite the bees in autumn, as it is to rob them in part, and bolster them up for stocks in the future. Makeshift hives should also be provided for the sending out of swarms, so that on delivery it may not be necessary to transfer them to others, a process often attended with danger to the queen, whereas with a close boarded floor and perforated zinc top a swarm on its arrival needs only a quilt and a feeding-bottle, and an hour after the withdrawal of the entrance slides, to render the bees composing it comfortable and happy.

FOREIGN HONEY.

The *Greenock Telegraph and Clyde Shipping Gazette* have had in hand a 'honey story,' which has, at least in that quarter, led to considerable merriment, and probably a little bitterness in the minds of those implicated, while at the same time it has called attention to the large import which has taken place in Great Britain, and to the fact that another is on the way to (and probably now landed in)

* The celebrated 'Renfrewshire Beekeeper,' writing in the *Journal of Horticulture*, p. 100, Jan. 1, 1877, says of crown (or honey) boards:—'Mr. Abbott has done good service in the cause of apiculture by recommending their removal entirely during the dormant season, and substituting a "quilt."'

this country. It appears that an enterprising Greenock grocer purchased a ton of the said honey, and, as it is said, stipulated with the Glasgow agents that no one else in Glasgow was to be allowed to purchase any of the same lot for retail in that city. By some means, however, a grocer, No. 2, obtained a small quantity, and immediately began to undersell grocer, No. 1, who, in his turn, hearing that No. 2 had only a small quantity, endeavoured to buy him out, at the same time lowering his price. No. 2, hearing of the reduction, sends agents to purchase for him, and thus they bought of each other in a most amusing way until the bubble burst, when a sharp crossfire in the local newspaper mentioned was the result. A grocer, No. 3, says thereupon that the honey referred to was by no means an exclusive article of commerce, and continues:—

'In fact, had grocers and chemists not considered it for their own interest to have nothing to do with it, they would find no difficulty whatever in getting any quantity, and from almost any importer of American produce; and if you wish any further proof of this, the writer will be glad to get you quotations from a few houses. The order referred to in enclosed memorandum was cancelled on finding that the article had already become unsaleable, and present holders will be very glad indeed to get rid of their stock either at 1*s.* 10*d.* or 2*s.* per box.'

This was signed 'Fair Horny,' and was evidently from one who had contemplated trading with the article. Grocer No. 2 thereupon shows that the quantity of honey bought by No. 1 was only about a quarter of a ton, and declares that all along he (No. 2) was selling his honey at a profit, and was thankful to No. 1 for finding him customers. Grocer No. 1 now retorts, and says that the honey imported by his rival was 'damaged,' that his (No. 1's) 'honey is so good, that he has rarely had a luxury that sold faster;' yet he admits that he has about '3 cwt. left,' and means to withdraw it from his window, for reasons which he gives; one of which is, that his rival is selling his at a lower price than, as he (No. 1) says, either party can buy it at. It is a petty squabble between rival traders, but it has given notoriety to the late honey imports, and has set in motion machinery whose action may, and ought to, set others in responsive motion. The Caledonian Apiarian Association, ever jealous of the honey produce of its clover and heather moors, does not choose that its stronghold of honeyed purity shall be invaded and depreciated in other than fair competition; and having in view the collapse of the attempt, in 1877, to foist glucose in pretty jars, on the Clyde district, for honey such as is there grown plentifully, and as pure as its own bright waters, they have caused samples to be taken, not only of the foreign stuff, with a view to legal proceedings, but of their own produce also, that comparative analysis may be made, and the public satisfied as to the state of the case.

Our remarks in the *Journal* of last month on this subject elicited from a valued correspondent a request that we would publish the full analysis of the glucosed honey, which was made by Dr. Clarke of Glasgow, and caused the conviction of a grocer in that city a year or more ago; and by favour of the Secretary of the Caledonian Apiarian Association we are enabled to give it briefly, thus:—

'Californian White-comb Honey, from H. H. and F. B. Thurber and Co.

Starch glucose . .	57·0 per cent.
Water	13·3 ,,
Fruit Sugar . . .	29·7 ,,
	100·0

'The sample consisted partly of comb, and partly of syrup. The syrup had no taste of honey.—*August* 23, 1877.'

We have been promised the result of the analysis of a case of the latest importation, one of crude honey of this year; meaning probably, run or extracted honey, a sample of clover-honey from Dumfries, and another of heather-honey from Holy Loch, Argyllshire, all under the direction of the Caledonian Association; action which we hope will be speedily imitated by our British Bee-keepers' Association in London, that the spurious trash now sold may be driven from the market.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.

On next page will be found the financial Report of this valuable Association, and we are sorry to observe that the balance is on the wrong side. Considering the immense amount of good this Society is doing year by year, and its having achieved a happy union with the great Highland and Agricultural Association, as we hope our British Bee-keepers will with the Royal in the South, breaking fresh ground year by year, and enlightening the thousands who attend these great gatherings, we think there should be no difficulty in procuring funds to discharge the deficit before commencing the new season, and we trust the effort will be made.

A hundred half-sovereigns will set the Association free. We will send one, and hope other ninety-nine well-wishers to the cause will do likewise, so that their business-like Hon. Secretary may not feel hampered at the beginning of a new era in the history of Scottish apiculture; for it will be both new and gratifying to our readers to know that the Highland Society are so well pleased with the company of the bees and their masters, that in 1879 they intend

to give them a handsome donation, an initiative which our Royal Agricultural Society would do well to follow, and which, seeing that the Highland has had two years' experience, they might do with perfect safety and certainty of great success.

All the officers of the Association give their services gratuitously, and those who know the nature of the labour attending such monster exhibitions as take place each year under Mr. Bennet's skilful management, will agree that there ought to be no labour thrown upon him of soliciting donations to help the abundantly useful work in which he and his Association are engaged.

INCOME.

	£	s.	d.
73 Annual Members' Subscription at 2*s.* 6*d.*	9	2	6
14 New Members' Entry Money at 2*s.* 6*d.* ...	1	15	0
13 Members' Arrears	1	12	6
1 Donation at 42*s.*	2	2	0
6 Donations at 21*s.*	6	6	0
3 Ditto at 20*s.*	3	0	0
1 Donation at 16*s.* 6*d.*	0	16	6
1 Ditto at 15*s.*	0	15	0
1 Ditto at 10*s.* 6*d.*	0	10	6
1 Ditto at 10*s.*	0	10	0
6 Donations at 5*s.*	1	10	0
9 Ditto at 2*s.* 6*d.*	1	2	6
Drawings from Visitors at Shows	69	5	0
Ditto at Observatory Hive	3	11	0
Entries for Exhibits at Shows	7	13	0
Sundries	2	6	10
Bill drawn on National Bank	60	0	0
	£171	18	4

EXPENDITURE.

	£	s.	d.
Amount due Treasurer	28	5	3
Contract for Show-tent	20	0	0
Glasgow Public Hall Company	5	0	0
Die, Silver and Bronze Medals	14	7	0
Printing, &c.	17	10	0
Bees, &c.	10	5	0
Joiners, for fittings, &c.	10	6	6
Advertising	6	7	8
Amount of Accounts paid	10	12	3
Prize Money	29	6	0
Sundries	9	10	3½
General Expenses of Management	7	8	6
Cash on hand	2	19	10½
	£171	18	4

	£	s.	d.
Cash due National Bank	60	0	0
Amount of Accounts not paid	9	13	0
	£69	13	0
Value of Stock on hand	20	0	0
Cash on hand	2	19	10½
Balance, being deficit	46	13	1½
	£69	13	0

THE PETTIGREWIAN LIBEL.

It will be remembered, by reference to the *B. B. Journal* for November last, p. 129, that Mr. Pettigrew had stated in the *Journal of Horticulture* a few weeks previously, *that straw skeps had been refused admission to the Crystal Palace Shows*; and on the page referred to, Mr. R. Symington denounced the untruth in unmistakable terms. And in the *Journal of Horticulture*, of November 14th, Mr. Hunter followed suit; and, furthermore, took him (Mr. Pettigrew) to task, on account of other blunders which he had committed, and, as a consequence, Mr. P. felt it necessary to offer an explanation, which he did in the *Journal of Horticulture*, on the 5th of December last, as follows:—

STRAW HIVES.

In noticing lately the oft-repeated condemnation of straw hives I happened to say that they were refused admission to a Crystal Palace Show. This statement was made on a recollection of a conversation I had with Thomas Bagshaw, Esq., Longnor, Buxton, four years ago. He told me he had complained to Mr. Abbott (Treasurer), of the schedule of prizes being so one-sided, and against straw hives, that he had a large straw hive, 20 inches wide, filled by a swarm, which he wished to put in competition in a class. He wrote to Mr. Abbott to see if it would be allowed to compete, and received for answer that his 'query is a poser,' but that he would consult his colleagues, and send further information as soon as possible. The promised information came from Mr. Hunter, the effect that the hive or hives could not be allowed to compete. This is what I understood about the matter at the time. As soon as I saw Mr. Hunter's letter in the *Journal* I wrote to Mr. Bagshaw, who is a gentleman of unimpeachable veracity, asking him if he would be kind enough to clear up the matter in a letter to the *Journal*. To-day, a letter from him to me, to say that he cannot remember the matter distinctly enough to enable him to write a public letter, and that he has not copies of his own letters to Mr. Abbott on the question, but will enclose what he can lay his hands on. Amongst the enclosures is a letter from Mr. Hunter, dated 15th August, 1874, which says, 'Your query on Class 8 came whilst I was on the Continent, and I understand that Mr. Abbott replied to it; however, the matter was mentioned to our Committee, and the opinion was unanimous that the produce of swarms must not be taken into account.' This statement certainly does not indicate that it was the material of the hives that disqualified them for competition, but that they were filled by swarms. What Mr. Bagshaw thought then he thinks still, and says, 'There was an evident wish to exclude the straw hive by the arrangement of the schedule.' If his hives were really not allowed to compete for other good reasons, or on other grounds, my statement that they were refused admission is not correct. If I were clear on this matter, I would withdraw the statement at once, and openly, and consider it a happiness to do so.

Mr. Hunter's letter says he has another grievance against me—viz., that, 'I should be a little more particular before shifting my blunders on to his shoulders.' Mr. Hunter is certainly under some misunderstanding here, for I never thought of or attempted to do such a thing. I never misquoted his figures, nor misrepresented the meaning of his book. 'The 14 inches diameter,' were correctly quoted by me eighteen months ago. In my own description I said 15 inches, but did not blame Mr. Hunter, or indicate by word or deed that he was at fault. If I were to make a blunder I would bear the shame of it myself: not on any account would I attempt to shift it on to the shoulders of anybody else.—A. PETTIGREW.

The meaning of the last paragraph in this singular production we are unable to comprehend; but the former part was felt to be so mis-

leading, that the following letter, which will speak for itself, was sent to the Editor of the *Journal of Horticulture* for publication on the 16th ult.

STRAW HIVES AT CRYSTAL PALACE SHOWS.

To the Editors of the *Journal of Horticulture*.

Sirs,—On page 440 of the present volume of your *Journal* I find Mr. Pettigrew has endeavoured to palliate the perversion of the truth in regard to the above subject by dragging my name forward to support his 'recollection' of a conversation he professes to have had with Mr. Bagshaw four years ago—a conversation, probably, as purely imaginary as that which he reported in the *Journal of Horticulture* of the 12th inst. His statement that straw skeps were refused admission to the Crystal Palace Shows is an untruth—a wicked perversion of facts, which Mr. Bagshaw, who is a 'gentleman of unimpeachable veracity,' very properly declines to support, either by his own word or by the production of documentary evidence.

That Mr. Bagshaw wrote to me (several times), I admit; but that in reply I ever wrote a single word or sentence which would admit of the construction Mr. Pettigrew puts upon one or the other I utterly deny. Indeed, from the first I had no such one-sided idea. The proposal to hold a Crystal Palace Show originated at my own fireside. The first idea was simply to hold a meeting of bee-keepers, and after dining to discuss bee matters and make friendships: and a proposition was made to that effect in the *British Bee Journal* of October 1st, 1873, about which time the huge Manchester Swindle, in the form of a glass super of 87 lbs. weight and a Pettigrew hive and super of 139 lbs. weight, was the subject of severe criticism; and the method of their production having come to light they were accepted as 'useful cautions' in the coming work of framing the Schedule of Prizes for the prospective exhibition, which was first mooted in the *British Bee Journal* on Nov. 1st, 1873, encouraged in that of December following, and on the first of January, 1874, a first list of subscribers was published, followed on the first of February by a proposed Schedule of Prizes, subject to alteration. And in its second class in the list marked *b* a prize was offered of 2*l.* and certificate *for the best skep or box-hive for depriving purposes*; and there were four other classes—*c*, *d*, *e*, and *f*,—in which the straw-hivist could have competed if he had chosen to do so, the prizes being of the same value. Mr. Pettigrew at that time made no objection to them, though during the spring months his friends did what they could in the *Journal of Horticulture* to bring the movement into discredit: and when Mr. Symington replied to a letter of Mr. Bagshaw's, which appeared in the *Journal of Horticulture* on March 19th, 1874, explaining the nature of the proposed (Crystal Palace) schedule, and plainly showing that skeps could compete in four classes for hives and sixteen for honey, his (Mr. Symington's) letter was suppressed by the editor of that journal; and perhaps Mr. Pettigrew, being 'on the paddle-box,' may give the reason why? Also, why, having the knowledge that it appeared in the *British Bee Journal* of May 1st, 1874, a copy of which was sent to him, he ignores it, and charges the promoters of the shows with excluding straw skeps therefrom? Now, up to this time the British Bee-keepers' Association had no existence, but through the *British Bee Journal* I had received upwards of 70*l.* towards the prize fund of the proposed show, and as may be seen on page 5 of its second volume I then invited all those who had subscribed to a meeting at Camden Town, where I hoped not only to revise the Schedule of Prizes to be offered, but to lay the foundation of a National Society for the promotion of apiculture. The meeting took place accordingly on the 16th May, 1874, and the British Bee-keepers' Association started into existence: but there was no alteration of the schedule that would exclude the skep or its produce from competition, though Mr. Hunter, in his eagerness to provide, or cause to be provided, a hive that should be within the reach of all cottagers, carried a motion which added to the wording of Class 2, and made it read,—'For the best skep or box-hive for depriving purposes that can be supplied for 3*s.* exclusive of floor-board—prize, 2*l.* and certificate.'

Time went on, the show was held, and it was a glorious success: and amongst other reports of it which appeared in the *Journal of Horticulture*, of which Mr. Pettigrew was, as he is now, one of the editors, alluding to Class 2, as above described, the writer says,—'*Some very good straw skeps were shown, one, No. 9, exhibited by W. Martin, even was fitted with bars*, but the prize in the class was, we think, justly awarded to Mr. C. N. Abbott for a veritable Woodbury, price 3*s.*, with many improvements,' &c., &c., &c. Thus we have one of the editors—the Captain of the Paddle-box—denying documentary evidence which came under his very eyes, appeared in his own journal, and was followed at the same time in the same columns by his own writings on the 'taking of honey and wax,' published on the 17th September, 1874, and which is so similar to his article on the same subject on November 14th, 1878, in the same journal that one would almost think he had referred to the former before writing the latter.

In the Association's schedule for the second great exhibition at Crystal Palace in 1875, which appeared in the *British Bee Journal* for May of that year, side by side with Mr. Pettigrew's 'own proposed' schedule of prizes for the Manchester Bee and Honey Exhibition,' a prize of 20*s.* and certificate was offered in unvarnished terms 'for the best and cheapest skep for depriving purposes.' This class afterwards became No. 6, and in the report of the show in the *British Bee Journal* of October 1st, 1875, I read,—'Class 6: for the best and cheapest skep Messrs. Neighbour carried off the first prize with a PETTIGREW HIVE at 4*s.* 6*d.*, Mrs. Pagden coming in second with her neat little skep, at 1*s.* 9*d.*, size being apparently the point appreciated.' These facts need no comment. Facts are stubborn things.

I am sorry for Mr. Pettigrew's sake that he has rendered it necessary for me to ask you to publish these facts, in the journal with which he is connected. I let his utterances pass as a rule, and now, but for the implication of my name should not have noticed his extraordinary conduct: and as regards the private correspondence which I had with Mr. Bagshaw in 1874 I can only say that it has gone to the mills to become again clean paper. I never expected to hear a private letter identified in so public a way, and when writing to Mr. Bagshaw had no idea that he was Mr. Pettigrew's *factotum*. Individually I could afford to drop all recollection of the 'school' I have touched upon, but having been 'dragged in,' I feel it my duty not only to myself, but to the readers of my Journal, to shake myself clear as quickly as possible. Those who desire a more minute understanding of my meaning should refer to Mr. Bagshaw's letter on p. 91 of the *Journal of Horticulture*, 1874, and to the scorching denunciation with which his defence of the Manchester Swindle was met, in the succeeding week, p. 113, by the straightforward and true apiarian, and co-Editor withal, who under the initials of 'B. & W.' does his best, subject of course to the Captain, of paddle-box notoriety, to keep the common weal of bee-culture up to the times.

Now as to the 'poser' which Mr. Pettigrew has quoted, but which as before said was a private matter, I remember that before the first Crystal Palace Show 1874 took place, Mr. Bagshaw asked me in a letter if in Class 8, 'For the largest and best harvest (of honey) from one stock of bees under any system or combination of systems,'

he could bring to the show the produce of a stock, and of all the swarms thad had issued from it; and, it being our first show, I preferred to let the matter be decided by the Committee, which *must* have been appointed or I could not have been the 'Treasurer;' and in my reply I probably said his query was a 'poser,' which the Committee must decide upon, and doubtless from Mr. Hunter's hands he received the desired information.

That Mr. Pettigrew perfectly understood the position of affairs, and took in the whole 'situation,' may be best gathered from his 'proposed Schedule of prizes for the Manchester Show' before alluded to, wherein the first set of prizes in Class A were offered 'For the largest and best results obtained from one stock of bees managed on any system either swarming or non-swarming,' the prizes being respectively 80s., 40s. and 20s. Unfortunately the season 1875 was a very bad one, and in the face of the exposures of 1874 the tricks by which the Manchester supers had been filled with 'shoddy' could not well be repeated, and as a consequence the thing collapsed. In the schedule just referred to, written by Mr. Pettigrew, prizes were offered, in Class 9 '*For the best and neatest observatory or unicomb hives;*' to the amount of '60s., 40s., and 20s.' and in Class 10—'For the most *ornamental hive of glass, or glass and wood;*' prizes were offered, in Mr. Pettigrew's own hand, to the value of 40s. and 20s. with the stipulation, that in both instances the hives were 'to be exhibited with bees in them.' Further on, in Class 13, *he proposed a prize of 20s. for the best bar-frame hive*' and an equal amount 'for the best straw hive.' Later in the same schedule he offered prizes of the value of *5l., 2l.* and *1l.* respectively, '*For best and the largest collection of hives, bee-furniture and other necessaries for an apiary;*' and in the last Class, No. 10, offered 20*s.*' *For a collection of the best and cheapest supers (empty) for general use in an apiary.*' This occurred in May 1875, yet now in 1878 Mr. Pettigrew alludes to the outcome of the great show by the British Beekeepers' Association at South Kensington in August last as 'puffed-up novelties,' though the text in their schedule was almost identical with his own in respect of the foregoing, and the *meaning* undoubtedly the same.

I have no desire to comment on Mr. Pettigrew's method of teaching: and, as it will be evident to the meanest capacity that he and I are not in one boat, I need say no more than that I have felt it necessary, by a plain statement of facts, to clear the air during this dull season, that he may not through darkness or ignorance, run the stem of his craft into the stern of mine. This letter will be published *verbatim* in the *British Bee Journal*.—C. N. Abbott, Ed. *B. B. J.*

BRITISH BEE-KEEPERS' ASSOCIATION.

At a meeting of the Committee of the British Bee-Keepers' Association, held at No. 15 Beaufort Buildings, Strand, on Wednesday, December 18th., present—Messrs. J. M. Hooker (in the chair), J. Hunter, D. Stewart, G. Minson, R. R. Godfrey, W. O'B. Glennie (Treasurer), and Rev H. R. Peel (Hon. Sec.), the Secretary read a letter received from Mr. H. M. Jenkins, Secretary of the Royal Agricultural Society, that the R. A. S. could make no grant of money towards the expenses of an exhibition to be held by the British Bee-Keepers' Association, at the great International Show of 1879, at Kilburn, but could only grant a certain amount of space to the Association, free of charge.

A discussion ensued as to the course to be pursued with regard to the Kilburn Show. The advantage of the Association being represented at Kilburn was apparent to all present. A great opportunity was offered of spreading a knowledge of Bee-keeping and carrying out the educational work of the Association, whilst at the same time the existence and objects of the Association would be known more widely, and a large accession of members might be expected. The expense, however, of holding an exhibition with manipulation would be considered, and the Committee did not feel justified in devoting the balance in hand to the holding of an Extraordinary Exhibition, at the risk of damaging the Annual Show of the Association, which it had been decided to hold at South Kensington. It was ultimately resolved to make an appeal for a grant to the Mansion House Committee, and to communicate further with the Secretary of the Royal Agricultural Society.

Mr. Godfrey called the attention of the Committee to the necessity for establishing a honey market somewhere in the metropolis, in order to afford cottagers, &c. the means of disposing of the produce of their bees. The Secretary said that he was already in communication with the manager of the Columbia Market, with the view of establishing a show depôt for the East End of London; and several members of the Committee promised to make inquiries in other quarters with the same end in view.

The balance-sheet for the past year was produced and submitted to the Committee, showing a balance of 62*l.* 11*s.* 1½*d.* It was resolved that after the close of the year (a few arrears being still due) it should be placed in the hands of the usual auditors.

Election of Committee.

Dear Sir,—May I remind the Members of the British Bee-Keepers' Association, through your columns, that the time has now arrived when, in accordance with the resolution passed at the General Meeting, on Wednesday, August 7th, the Secretary is to write to each member qualified to serve on the Committee, asking him whether he is willing to serve or not? Subscribers of *1l.* per annum are alone eligible to act upon the Committee. As soon as a reasonable time has been allowed for the return of answers, a list of candidates for election will be forwarded to each member of the Association, with full instructions for voting. The result of the election will be made known at the General Meeting, which will be held in all probability about the middle of February.—I remain, Sir, yours faithfully, H. R. Peel, Hon. Sec. *Abbot's Hill, Hemel Hempstead.*

THE BRITISH BEE-KEEPERS' ASSOCIATION AND THE ROYAL AGRICULTURAL SOCIETY.

(*Condensed from Notes on 'Farming' in the* Warrington Guardian *of November* 27, 1878.)

There is always something interesting to be picked out from what is said and done at the monthly meetings of the Royal Agricultural Society. At the meeting this month (November) the Prince of Wales took the chair. Sixty-seven new members were elected.

The forthcoming great Agricultural Exhibition, which is to be held in London in 1879, bids fair to be of a most interesting character, and even now the arrangements are so far complete that extraordinary success is a certainty. It will also present several new features which will render it somewhat different from the ordinary shows of the Society. The prizes for the best cultivation of land are to be awarded next year to sewage farms and to market gardens. No doubt this is a good and useful determination; for the disposal of the sewage of our large, and even of our smaller towns and villages, is daily becoming a question more and more difficult of solution. Another interesting feature at the Show will be the classes for foreign cattle; and we shall have the opportunity of comparing some of the Continental breeds with our own. At least the Secretary of the Society was instructed to write to the Agricultural Society of France to invite their assistance and co-operation; so we presume that the exhibition of foreign stock is contem-

plated. There will also be a novel feature in an exhibition of bees, by the Bee-keepers' Association.* We are not accustomed in this country to consider bees as part of the agricultural stock of a farm—and probably in England they are not likely to become of much more importance than they are at present; but in America bees are a very important part of the live stock of the country, so important that there are bee-farms, and the yield of honey and wax, which are chiefly articles of export, are considered of sufficient importance to be included in the annual agricultural returns.

That results equal to those we read of from America could be obtained in England is of course impossible; but at the same time more could be done here than is done by bees, if not by farmers themselves, by the wives and families of farmers. But farmers are benefited by bees in a manner many of them little suspect. They, in common with many other insects, are the chief agents in the fertilizing of flowers. The scattering of the pollen or yellow dust upon the embryo seed alone causes the fruit to come to perfection, and modern science has conclusively shown that this operation is effected by insects, and notably by bees, carrying the dust from one flower to another; and we have no hesitation in saying that if a dozen hives of bees were placed in a field of beans at the time of flowering, there would be a better crop than if no bees existed in the neighbourhood. This is a curious fact, but there is no doubt of its truth. Hive-bees cannot fertilize the flowers of red clover, as their tongues are not long enough to reach the honey at the base of the long flowers. Red clover is therefore fertilized by humble-bees, whose tongues are extremely long and adapted for the task. Now, it so happens that in New Zealand, and, we believe, in Australia also, red clover is, as with us, grown as a farm crop; but though hive-bees have been acclimatized in those colonies, and are plentiful, there are no humble-bees, and the consequence is that red clover never ripens any seed there, although the climate suits the plant perfectly, and our cousins at the Antipodes are obliged to import all their clover seed. To remedy this state of things humble-bees have lately been taken out to New Zealand, in the hope that they may become established there and fertilize the red clover; and, if the experiment is successful, it will be one of the prettiest applications of science to practical utility which has ever been seen.

BEE-KEEPERS' ASSOCIATION IN KENT.

We are very glad to be able to announce that steps have been taken in the formation of a Bee-keepers' Association at St. Mary's Cray, to be designated the Cray Valley District Branch of the British Bee-keepers' Association, and that a Committee has been formed to carry out its objects. The Rev. A. Welsh, Vicar, is the chairman, A. Kinder, Esq. treasurer, and Jesse Garratt, Esq. of Hockenden, St. Mary's Cray, the hon. sec. The rules are of the usual type—mainly those of the Lincolnshire Association, and the objects too well understood to need repetition. A lecture on bees, &c., will be delivered on or about the 7th inst., and we shall have the honour of sending a few specimens of hives, &c. as illustration. Such associations are worthy of unlimited support, and we hope this new effort will meet with due appreciation.

PERTHSHIRE APIARIAN SOCIETY.

A meeting of Perthshire apiarians, called by advertisement, was held in the Guild Hall, Perth, on December 9. There was a large attendance. The Rev. M. Findlay, Struan, was called to the chair, and Mr. W. W. Young, Perth, was appointed clerk to the meeting. Letters of apology for absence from several gentlemen who highly approved of the object were read. The chairman stated briefly the object of the meeting, and the desirability of its attainment. He said there was no county in Scotland where bee-keeping could be more satisfactorily or profitably conducted if recourse were had to the great improvements which in recent years had been introduced. While it was quite true that there was no part of the kingdom which had more cause to boast of the skill and success of some of her apiculturists, it was equally true that the old system of skeps, cross-sticks, and brimstone, was still extensively prevalent. There was no society for the county as yet, to diffuse information and give encouragement to effort. They were met this day to prevent that statement from being repeated. It was then, as a matter of form, moved, 'That the meeting resolve itself into a society to be called "The Perthshire Apiarian Society."' The motion was seconded by Mr. Paterson, Struan, and carried with acclamation. A committee was then appointed, consisting of Messrs. Young and Edwards, Perth; Paterson, Struan; Ellis, Bridge of Earn; Raitt, Blairgowrie; Irvine, Aberfeldy; and Graham, Dunning; to draw up a code of laws, and report to an adjourned meeting to be held in Perth, on Saturday the 11th January, at 3 o'clock p.m. Mr. Bennett, Glasgow, who was present, gave an interesting account of the formation of the Caledonian Apiarian Society, and its progress during the past four years. He mentioned that it had now been taken under the patronage of the Highland and Agricultural Society, which had promised aid to the extent of 20*l.* for next year, and also a silver medal to be competed for. It so happened that the next show of the Society was to be held in Perth, in July 1879; and, apart from other considerations, this would make it very desirable that the Caledonian and Perthshire Societies should form a bond of mutual friendship. For a small pecuniary consideration, the members of the latter would enjoy all the privileges of the former, and by continuing this connexion, they would, year by year, secure advantages which would go far to consolidate and increase the prosperity of both Societies. Several members expressed themselves as highly pleased with Mr. Bennett's statement, and favourably inclined to adopt his suggestion. It was agreed, however, to leave over the fuller consideration of the matter till the meeting in January. A vote of thanks to the chairman terminated the proceedings, which were of a very cordial and gratifying character.

BEES AT THE HARVEST FESTIVAL AND FLOWER-SHOW AT HORFIELD.

The fourteenth harvest home festival at Horfield was celebrated amidst much festivity and rejoicing. The *fête* from year to year has been growing till it now, indeed, assumes something of the dimensions of the harvest home with which the Venerable Archdeacon Denison has associated his name at East Brent, and the visitors in the Rectory-ground must have numbered fully 700. The grounds were quite gay with flags. There was, too, the flower-show organized by the rector, the Rev. H. H. Hardy, and his churchwardens, Messrs. Offer and Neale, assisted by Colonel Hardy, Captain Watson, Mr. Harvey, and others. In a neat little circular, issued by Mr. Hardy to his parishioners, calling upon them to 'enjoy themselves and make things pleasant with one another,' the rev. gentleman reminded them that the seasons had been most favourable for both hay and corn. 'It is not the farmer only, nor chiefly, who profits by a good year,—

> 'Yet may farmer thank God and say,
> For yearly such good hap.
> Well fares the plough that sends enough
> To stop so many a gap.'

* We sincerely trust that the proposed Show in connexion with the Royal Agricultural Association has been arranged by the British Bee-keepers' Association.—Ed. *B. B. J.*

Attracting special attention, and proving very interesting, were the collections of hives, and honey, and illustrations of bee culture by Mr. Chaplin, of Westbury-on-Trym, and Mr. C. A. Peters, of Claremont. Mr. Chaplain was awarded an extra first prize for the best 'super' of honey. He also exhibited a collection of comb-honey, bars, and supers, and two unicomb glass hives, with English and Ligurian bees, and in one of these the queen-bee could be seen. In his collection of objects illustrating the natural history of bees he showed a section of hive with a snail, which, penetrating into the hive, had been fast sealed up by the bees, who, having a wholesome horror of any noxious smell arising from decayed bodies, had taken these sanitary measures on finding that the snail was too unwieldy an object to eject from their home. Mr. Chaplin opened a bar-frame hive and interested large numbers of the visitors in illustrating the mode of dealing with the bees and extracting the honey.

ON THE

AMOUNTS OF SUGAR CONTAINED IN THE NECTAR OF VARIOUS FLOWERS.

By ALEX. S. WILSON, M.A., B. Sc.,
Fellow in Natural Science, Glasgow University.

(From the *Chemical News.*)

Nectar is the term applied by botanists to the sweet-tasted fluid which is secreted within the cups of insect-fertilised flowers: and the object gained to the plant by its presence is that insects, induced to visit flowers for its sake, are useful to the plants by effecting a cross-fertilisation. Mr. Darwin has shown what an amount of additional vigour is thus conferred on the seeds which subsequently result in contrast with the evil effects produced by continuous in-breeding. In many instances this sweet liquid is exuded from special glands, but in other cases from portions of the flower that do not seem to have been specially adapted for this purpose. Morphologically, nectaries may represent very different structures, but not unfrequently they are of the nature of an aborted organ—such as a petal or stamen. It is a point in dispute among biologists whether this saccharine matter is a true secretion or simply an excretion of effete matter from the vegetable cells—a by-product of the chemical changes taking place within these cells. The latter view seems to be favoured by the fact that a similar sweet-tasted fluid, much sought after by insects, is exuded on different parts of some plants quite unconnected with the flower, as in the laurel, brake fern, lime-tree, acacia, &c. As to the use of such exudation of sweet fluid, various suggestions have been made by those who are disposed to regard it as a true secretion; as, for instance, that it serves as an attraction to certain insects to frequent the plant, these insects rendering service by keeping off animals to whose attacks the plant may be subject. Probably this is to some extent true, but it cannot be said to hold universally. Nectar is of course the source whence the bee derives honey, but it also affords food to many kinds of insects which do not possess the habit of storing up. A division of the humming-birds is named Melliphagi on account of living on this substance; but it is probable that in some cases the small insects seeking the nectar, and not the nectar itself, may be the objects of the visits of these birds to nectar-producing flowers. The bright colours, as shown by Sir John Lubbock's experiments, serve to guide insects to the flowers, and the odours which they emit fulfil the same end. The markings of a flower's petals, it is to be noted, always converge towards the nectar, as in the violet. The importance of these guides to insects will be apparent from the following estimations, which show how indispensable it is that as little time as possible should be los by an insect collecting honey. It must also be remembered that the nectar is usually contained in the most secure and best covered part of the flower, the object being to prevent the access of rain, which, owing to the extreme solubility and diffusibility of sugar, would speedily cause it to be transferred to parts of the plants where insects could reach it without being of any service in the way of cross-fertilisation. The chief purpose of the flower would in this way be frustrated. The formation of nectar is observed to take place most freely in hot weather, and to be prevented by cold or wet. So great economy is exercised by the plant that it is only formed at the time when insects' visits would be beneficial, *i.e.*, when the anthers are ripe and shedding their pollen, or when the stigma is mature and ready to receive pollen. By biologists the visits of bees, butterflies, and other insects, are believed to have exercised in past time an important influence in modifying the size, shape, colour, &c. of flowers; and the following experiments, in spite of their incompleteness, are of interest as showing to what an extent this action takes place in nature, and as helping to determine the value of this factor. These estimations are only the first of a series, and the writer regrets that he has been unable to give them the desirable completeness, but hopes to continue them.

The nectar was extracted with water, and the sugar determined before and after inversion by means of Fehling's copper solution. Many of the estimations were done in duplicate, and gave results that agreed perfectly. In the case of fuchsia—which is not deprived of its nectar by any insects in this country, the nectary being inaccessible to native species—we have probably the whole amount formed, but in the other cases the visits of bees, &c., may have reduced the amounts considerably. In this case it is a clear colourless liquid, having an acid reaction and an intensely sweet taste; that of many others has the strong characteristic odour of honey:—

SUGAR IN FLOWERS.

	Total, M.m.g.	Fruit.	Cane? (as Fruit.)
1. Fuchsia, per flower ...	7·59	1·69	5·9
2. *Claytonia Alsinoides*, do.	0·413	0·175	0·238
3. Everlasting pea, ditto ...	9·93	8·33	1·60
4. Vetch (*Vicia Cracca*) per raceme	3·16	3·15	0·01
5. Ditto, per single flower	0·158	0·158	—
6. Red clover, per head ...	7·93	5·95	1·98
7. Ditto, per floret	0·132	0·099	0·033
8. Monkshead, per flower ...	6·41	4·63	1·78

Approximately, then, 100 heads of clover yield 0·8 grm. of sugar, or 125 give 1 grm., or 125,000 1 kilo of sugar: and as each head contains about 60 florets (125,000 × 60), that is, 7,500,000 distinct flower-tubes must be sucked, in order to obtain 1 kilo. sugar. Now as honey, roughly, may be said to contain 75 per cent sugar, we have 1 kilo. grm. equivalent to 5,600,000 flowers in round numbers, or, say, two and a half millions of visits for one pound of honey. This shows what an amazing amount of labour the bees must perform, for their industry would thus appear to be indispensable to their very existence. Another point worth notice in these results is the occurrence of what appears to be cane-sugar, and that in the case of fuchsia in the proportion of nearly three-fourths of the whole. This is remarkable, as honey is usually supposed to contain no cane-sugar, its presence being usually regarded as certain evidence of adulteration. The question therefore arises, whether this change, which takes place while the sugar is in the possession of the bee, is due to the action of juices with which it comes in contact while in the honey-bag or expanded œsophagus of the insect, or whether the process of inversion goes on spontaneously, as may perhaps be the case.

THE INTRODUCTION OF THE LIGURIAN OR ITALIAN BEE INTO ENGLAND AND GERMANY.

(*From the Journal of Horticulture.*)

The following account of the introduction of the Italian bee into Germany from the pen of Dr. Dzierzon, on the occasion of the twenty-fifth anniversary, which occurred on the 12th February, 1878, having been translated from the *Bienenzeitung* by my friend Mr. Henry Dieck, I thought it of sufficient interest to claim a place in your columns, more especially as the notice of bee-keepers in this country was first drawn to this variety of bee through the medium of your Journal nearly nineteen years since.

Many of the readers of 'our Journal' may recollect a notice which appeared on the 19th July, 1859, announcing that a new kind of bee had been offered to British bee-keepers, signed 'H. T.,' and inserted by my friend the late Mr. Henry Taylor, author of *The Bee-keeper's Manual*, and contributed to the pages of this Journal. This was an extract from a letter addressed by M. Hermann of Switzerland to my firm, and attracted the attention of your able correspondent the late Mr. Woodbury, who immediately sent to the address given for a queen. Thus a new era in bee-keeping was commenced in England. Bearing in mind this interesting circumstance, it occurred to me that the opinion of the great apiarian of the good qualities of the Italian bee after an experience of a quarter of a century might very appropriately appear in the *Journal of Horticulture*.—ALFRED NEIGHBOUR, 149 *Regent Street, London.*

THE TWENTY-FIFTH ANNIVERSARY OF THE INTRODUCTION OF THE ITALIAN BEES.

'I had been practising bee-keeping for about twenty years, and had written my first work on bees, entitled *Theory and Practice*, without being aware of the existence, in addition to our common grey or black bee, of other races and varieties of the honey-bee of quite a different colour. I certainly knew from the *Bienenzeitung* of the peculiarity of the heather bee to make preparations for swarming by breeding drones in hives in which there is a young queen hatched in the same year, which the common bees never do; and I had also read in Virgil while yet a student that there were two kinds of bee kings, those shining like gold, and others of a dark colour and an inactive disposition, the latter being compared by the poet to a fatigued traveller who goes along labouring through the dust. This description, however, I looked upon rather as a poetic license, and thought it applicable to young queens of generally a bright colour with frequently rather yellow rings, and to old queens mostly of quite a dark colour. When, however, I had become acquainted with the Italian bee by actual observation, it was quite clear to me that the poet when describing the two kinds of bees had in his mind the two varieties of bees—viz., the golden yellow one and the common grey or black bee, which are both met with in Italy at the present day, and to the former of which he decidedly gave the preference.

'The introduction of the Italian bee into Germany has been quite an event in the history of native bee-keeping. If I am not mistaken, I was told by Von Hruschka that a monumental stone had been placed in the apiary of Mr. Prollius of Mira, on the spot which had been occupied by the hive that was sent to Silesia. But if this event appears worthy to be celebrated by the senders of the bees, how much more important ought it to appear to the receivers. At the beginning of the present year, just a quarter of a century had passed since this memorable event, which certainly deserves to be kept in mind and to be specially mentioned in a prominent place of the organ of German bee-keepers. I will first give the history of the introduction of the Italian bee, and then mention the consequences of its introduction—the influence it has had on theory and practice.

'The first information of the existence of a differently coloured bee in several parts of Upper Italy I obtained from an article in the *Bienenzeitung* by our great bee friend, Capt. Conrad Von Baldenstein,* of Chur, in Switzerland. He related how during the campaigns in Italy he had become acquainted with a bee with bright yellow rings on the abdomen, how it proved to be an excellent means of deciding many a question respecting the propagation of bees which at that time was doubtful, and how on his return home he had a stock of yellow bees brought to his apiary from beyond the Alps. From that time the Italian bees occupied my thoughts, and I meditated on the ways and means of obtaining possession of such a colony. In the beginning of the year 1853 my ardent wish was fulfilled.

'In September of the year 1853,' continues Dr. Dzierzon, 'the fourth meeting of the German bee-keepers was to be held in Vienna. While preparations for this meeting were going on I was asked to send there some empty mobile hives (hives with moveable combs), as well as some colonies occupying hives of this kind which at that time were but little known; and when I was required to state the price, I requested that a stock of Italian bees might be sent me in exchange, adding that in my humble opinion it would not be impossible to overcome the difficulties of transportation from Mira near Venice to Silesia, *viâ* Trieste and Vienna. Some time after this I received a letter from Vienna advising me that the desired colony had arrived there and had been delivered to the railway company to be forwarded to me. This joyful message, however, was succeeded by days of anxious waiting—a snowstorm had stopped the traffic on the railroad. I sent to the station at Brieg every day, and I made inquiries by telegraph, but was unable to learn anything of the whereabouts of the stock. At last, when I had got tired of sending to the station the stock was delivered at my house. In the evening of the 12th February, 1853, it stood in my sitting-room, and to my agreeable surprise it was safe and sound.

'The stander hive in which they arrived, and which was about three feet high, and made of boards scarcely an inch thick, was placed upside down, and the ends of the combs which were somewhat inclined over each other were found to be united by the bees to one another so firmly that it was not easy for the combs to have got damaged. The first sight of the bees was a great surprise to me. I had not expected to find such a difference and such beauty of colour. I also very soon noticed their gentle disposition combined with extraordinary activity. About the beginning of March, when the ground was still partially covered with snow, and my other stocks gave no signs of activity, yet the Italian bees were busy in the hazel-bushes, and they got on exceedingly well notwithstanding their having been thrown back a little by being removed into a Mobile hive—a spacious Lager stock. As soon as I noticed drone brood in the hive I caused the bees to rear young Italian queens, and thus obtained twenty-seven pure Italian colonies. I might have obtained a far greater number even in the first year, but to my not exactly agreeable surprise all the drones were suddenly driven out of the parent hive about midsummer, this being probably the time when the drones

* We are informed by the *Bienenzeitung* that Captain Baldenstein, the introducer of the Alpine bee into Germany, has lived to celebrate the twenty-fifth anniversary of its introduction. On the 28th of January last, Capt. Baldenstein celebrated his ninety-fifth birthday. For the last five years he has been deprived of the pleasure of the personal study of bees through the loss of his eye-sight, yet he continues to have a lively recollection of the pleasant intercourse he has had in former years with German bee-keepers. [Since the above was in type the death of Captain Baldenstein has been recorded in German papers.]

are killed in Italy. I now left the stock undisturbed, and it completely filled its spacious hive with comb and became so heavy that it required the greatest exertion to lift it. In the following year when I had a larger number of parent hives at my disposal the increase was of course much more rapid, and I was enabled to send a good many small colonies, as well as fertile queens only, to every part of the country. I have no doubt that at the present time the Italian bee is known and cultivated in most parts of Germany where bee-keeping is practised.

'The introduction of the Italian bees into Germany may justly be regarded as an event of great importance. It has awakened and increased the interest taken in bee-keeping, and prepared the way for a great advance in the theory as well as in the practice of bee-culture. Without the Italian bees bee-keeping would not possess half its charm – to me, at least, it would not. To watch the beautiful Italian bees, especially the first generation of a young queen, playing in bright sunshine is a most interesting sight to me of which I never get tired. But what interests us most is that the Italian bee, compared with our common grey bee, allows us to make many observations, such as on the duration of life of bees, the origin of drones, &c., and it has been the means of clearing up almost all the formerly disputed points, respecting the propagation of bees. If the great authority on bees, Baron von Ehrenfels, had been acquainted with the Italian bees and had made experiments with them, he could not possibly have expressed the opinion that worker bees, if not accidentally dying a violent death, might attain the age of a queen-bee, and consequently live four years or longer. At present it is known to everyone who has had an opportunity of introducing Italian queens into stocks of common bees at different times of the year, that worker bees may live six months and longer during the time of rest in autumn and winter, but in the busy time of spring and summer their strength gives way so quickly and their wings become so worn out that they do not live beyond two months. Twenty-five years ago people had not yet settled the question as to the origin of the drones. From the fact that worker bees in hives where they have no queen, in the course of time begin to lay eggs, which, however, produce drones only, many bee-keepers supposed this also to take place in hives where the queen is alive and well, it being inconceivable to them that one and the same queen should be capable of adapting the sex of the eggs to the cells. Even Baron von Berlepsch was for a long time of this opinion. But after I had sent him two Italian queens in the autumn of 1853, if I am not mistaken in the time, and when he saw Italian drones appear in the hives to which those queens had been introduced as early as March in the following year, he became convinced that the theory which I advocated was the right one, the queen being the mother of all the bees in the hive, male as well as female. My theory about the drones, according to which they proceed from unfertilised eggs which leave the maternal ovaries capable of developing into male bees or drones, has also been confirmed by the yellow Italian bees, in so far as the drones always belong to the race of a pure mother, no matter whether she has been impregnated by a yellow or black drone, a mixing of the races being noticeable among the female offspring only, because the latter can only be produced from fertilised eggs. By means of the Italian bees it was also strikingly illustrated by Von Baldenstein that the old queen if still alive, which was doubted by many bee-keepers, leaves the hive with the first swarm, for after a first swarm and a second and third swarm had issued from his Italian stock the pure Italian offspring were propagated in the first swarm only, whereas a mixed offspring appeared in the parent hive and in the second and third swarms, because the young queens had been impregnated by drones of common bees, which existed in greater abundance than the Italian drones.

'The progress in the theory of bee-culture which had been so much advanced by the Italian bees could not, of course, remain without influence on practical bee-keeping, the former surely being the foundation of the latter. A more correct theory could not therefore but be followed by a more judicious practice. But directly even the introduction of the Italian bees has had a favourable influence on the practice of bee-keeping, because these bees are not only prettier in outward appearance, but they possess qualities which make them a valuable acquisition for practical purposes. It was said at the last annual meeting at Linz that the irascibility of the common bees, which often actually degenerates into a rage to sting, would be sufficient to disgust people with bee-keeping, and it was also asserted and proved that the Italian bees are less inclined to sting, which certainly is a decided advantage; although, on the other hand, it has been mentioned that the Italian bees sting very sharply. This statement may be correct as regards some variety received from other parts of the country (Italy), or having more German than Italian blood in its veins, but it is not applicable to the bees which I received from the neighbourhood of Venice. As the uniformly-coloured grey bee has peculiarities of its own as regards inclination to swarm, differing in the heath districts from other parts of Germany, it is possible that the yellow bee from different parts of Upper Italy and from Italian Switzerland may also possess peculiarities as regards inclination to sting.

'The greater bravery of the Italian bees in defending their stock against thieves and robbers is undisputed, and their indefatigable industry in gathering honey is universally known. What Virgil says of the superior gold-coloured bees as to their gathering plenty of honey for their owner remains true at the present day, after a lapse of nearly two thousand years.

'The Italian bees have been reproached with changing their queens more frequently than the black bees do, and during the first year after their introduction I think I myself made similar observations, which I ascribe to premature breeding. But since the Italian bees have become acclimatised, in consequence of which my bees at present do not expel the drones earlier than other bees do, I do not find the least difference between them and black bees as regards the commencement of breeding and the change of queens. During last spring and summer I did not lose even a single queen.

'A certain able bee-master considers it a great advantage that the queen-bee of an Italian colony is so easily distinguished from workers by her golden colour, no difficulty being experienced in finding her. In practice this is indeed of no small value, as it is frequently necessary to remove the queen, or at least to become convinced of her being alive. How much time do we not often waste in looking for the queen, and yet how frequently do we overlook a small queen, scarcely to be distinguished from a common bee, and uselessly sacrifice the most valuable queens, not noticing our mistake until, perhaps, it is too late to save the colony. But a pure Italian queen is discovered at a glance, even by persons with weak eyes. Searching for the queens of Italian stocks is moreover much facilitated by their remaining quite tranquil during operations, often even continuing to deposit eggs in the cells of a comb which has been removed from the hive, whilst the black bees, which shun the light if operations are not performed very cautiously, generally run away into the most distant corner of the hive and thus necessitate the removal of all the combs. In an Italian colony, especially if the bees are no longer quite pure, a change of queens may generally be noticed immediately by the colour of the young bees, and thus we may convince ourselves of the presence of a strong young queen in the hive without any examination at all.

'It is a well-known fact that the introduction of the Italian bees has been followed by the introduction of

other varieties, such as the Carniolan, Egyptian, Grecian, Asiatic, and recently the Cyprian bees. The Carniolan bees are perhaps as good-tempered as the Italian bees, but in the production of honey, which after all is the main point, they are greatly inferior to the Italians. The Egyptian bee is only of scientific interest; in practice it is of no value whatever in our country, because, as Vogel and Hilbert have shown, it breeds continually, even in winter, and therefore it winters badly. On the Cyprian bee I am unable to give an opinion, not having made any experiments with it. The opinions as to its value are still at variance, directly opposite views being held as to its irascibility. Should the Cyprian queen bees throughout be of rather a dark colour, like the one mentioned at the meeting in Linz, which had been born with shorter wings and yet became fertile, and on which a good deal of discussion took place, this certainly would be a slight disadvantage in them, otherwise they are splendid bees and have lately been very much praised. I stick to my gold-coloured Italian bees which I received twenty-five years ago, because from the results of my long experience I consider them, with Virgil, the kind of bees which yields the largest harvests of honey.—(Signed) Dr. Dzierzon, *Carlsmarkt, 1st December*, 1877.

THE PRACTICAL DOMESTIC MANAGEMENT OF BEES.

On Tuesday evening a lecture on the above subject was given by Mr. John Drage, head master of the Croydon British School, in the new schoolroom of the George Street Congregational Church. There was a good attendance, and the audience showed by their rapt attention that the subject was a highly interesting and instructive one. Dr. Carpenter presided.

The Lecturer commenced by saying that there is perhaps no occupation that can be followed by cottagers and people of small means with greater profit than that of bee-keeping. The necessary outlay in establishing an apiary is very trifling. A few shillings will suffice in most places to purchase a good stock-hive; and this hive, with proper care and attention, will in a short time become the parent of many hives, forming a prosperous and profitable apiary. Mr. Drage went on to remark that probably there is no country in the world where the successful management of bees is so little understood and practised as in this. In Germany, Switzerland, and Italy, bee culture is taught in all the schools and colleges. After speaking of how bees had attracted the attention of man long before any civilisation existed, even from the remotest age, the lecturer remarked that in the hands of a judicious and moderately attentive apiarian the keeping of bees might become a profitable branch of rural economy, and even the most humble cottager or farm labourer might be made to participate in the benefit of an improved mode of managing them. It should be remembered that honey is gathered at no cost to the owner, and that the poor are in as good a position to reap a rich honey harvest as the wealthy. Examples, said Mr. Drage, are not wanting where clergymen, and even cottagers, have realised 30*l.* or 40*l.* a-year by following a rational and proper system of bee culture. When it was considered that there are tens of thousands of poor cottagers in a position to keep bees, and thousands of miles of country affording hundreds of tons of honey, all evaporating for the want of bees to collect the same, it was sad to contemplate how little was being done to utilise the riches which the bounty of God had scattered broadcast and within the reach of all, rich and poor alike. Amongst the humbler classes in the rural districts the neglect of bee-keeping was to be attributed to an exaggerated idea of the trouble needful for the care of a few hives, and also to the ignorance of the easier and more profitable methods of modern management. Last year more than half a million's worth of honey was imported for home consumption, and annually hundreds of tons of honey are lost to the British community for lack of bees to gather the same from the flowers that blossom on the roadside, the hedgerows, trees, fields, parks, orchards, commons, waste lands, and heaths, without even mentioning the enormous quantity evaporated from the blossom-heads of sanfoin and the red and white clover. Every cottager with his usual garden allotment of forty rods may have placed upon it the same number of hives, and the bees in their foraging will find plenty of pasturage, giving their owner but little concern as to what they shall eat and drink, or wherewithal to gather; but he may, by a little judicious management, induce his ever-willing and industrious friends to gather, in addition to their own needs, a large store of luscious nectar for him. Bees are the most valuable servants in the world, working the live-long day without wages for the benefit of their master, and providing their own subsistence. Moreover, such things as strikes are unknown among their skilled hands, 'the masons,' or 'comb-builders.' A very interesting part of the lecture was that concerning hobbies. Mr. Drage said hobbies you all know people must have, and there is no reason why they should not have, providing they are reasonable, and within the means of those who desire them, and their possessors do not ride them too hard. There are few hobbies which cost so little outlay as the keeping of bees. Once the plant of hives is purchased, there is little, if any, additional expense, and always a probability of a fair return. After speaking of the different kind of hives, the lecturer said that having tried a great many varieties, he found that an inexpensive, useful, and manageable hive for the cottager is a small bar-frame one. A good swarm of bees should weigh 5 lbs., and number from 20,000 to 35,000 bees. The wretched 1½ lb. and 2 lb. swarms one daily sees shaken into hives are not even worth the worthless hives they are put into, and are seldom or ever able to live through the coming winter. Mr. Drage asked his hearers to follow him, in imagination, to a newly-appointed apiary, and he then minutely described what was going on there. The structure of cells in a hive and the subject of wax were also most ably treated. Bees, said the lecturer, show wonderful instinct and intelligence in repairing damage and adapting themselves to circumstances; the instinct displayed by some of these insects verges close upon reason, if it be not an inferior order of that power; for the greater number of the acts of their lives seem to be an idea, a mental deliberation come to after examination and reflection. What instinct impels them to send out scouts before swarming? Any one who has watched a swarm leave a hive can tell where they mean to alight by watching the scouts. Mr. Drage introduced to the audience a machine, invented by an American, called the honey-slinger, by means of which the combs can be relieved every day or two of their surplus honey without in any way injuring the comb. The lecturer observed that cottage economy was untaught and unpractised in this country. Tens of thousands of our paupers and half-starved cottages might live in ease and comparative comfort if they had been taught in their youth the spirit of independence and how to gain an honest living. It has often been asserted that any industrious cottager living by the roadside, and having a small garden, might realise from 40*l.* to 45*l.* per annum by keeping thirty laying hens, eight to ten hives of bees, three or four doe rabbits, and a sow pig. But to do it proper management must be first learned, and then acted upon. The 'queen-bee' came in for a large share of attention, and the lecturer also gave some valuable advice concerning the swarming of bees, feeding, &c., and stated that he should always be pleased to advise anybody on any matter concerning bees and their management. In concluding his admirable lecture he gave some

directions for alleviating pain after being stung by a bee, or any other similar insect.

The above is necessarily only a very brief outline of the lecture, which took over two hours in delivery. Mr. Drage illustrated his subject with some cleverly-painted diagrams, which we believe were done under his own direction by some members of his family.

Dr. Carpenter, in the name of the company, proposed a hearty vote of thanks to Mr. Drage for his instructive lecture, and this having been carried unanimously,

Mr. Bishop proposed, and Mr. Johns seconded, a vote of thanks to Dr. Carpenter for presiding, which, having been heartily accorded, the meeting terminated.

BEES AND BEE-KEEPING.

(From the 'Argus' Letters in the Croydon Advertiser.)

The papers recently read at a meeting of the Croydon Microscopical Club on the subject of 'Bees' have this week been well supplemented by the lecture by Mr. John Drage, delivered in the new schoolroom of the George Street Congregational Church. Attentive readers of your journal ought now to be well posted up in every detail with respect to bee-keeping and the management of bees. Mr. Drage has done good service in drawing attention to a matter which seems to have been considerably neglected in this country. England for several months in the year is a perfect land of flowers. Besides the large areas of garden ground filled with floral favourites, there are in many districts acres and acres of of clover in bloom, from which the bees would extract a vast amount of honey if they were kept to perform that service for their masters. As Mr. Drage remarked, in the hands of a judicious and moderately attentive apiarian, the keeping of bees might become a profitable branch of rural economy. It is lamentable to think what a source of wealth is wasted by having no bees to range over the miles and miles of country from which honey might be collected. This probably is due chiefly to the idea that the management necessitates a vast amount of trouble, but such is really not the case. The details of management are easily learned, and their application will pay the bee-keeper. It is impossible to have more cheap and willing servants than bees. Nearly every cottager might keep them, and find them an excellent source of profit. I quite agree with Mr. Drage, that cottage economy is untaught and unpractised in this country. If it were taught, thousands of peasants who now live in abject poverty might realise the means of keeping themselves and their families in comfort and comparative affluence. When the notion is got rid of that the enjoyment of life does not really consist of beer and skittles, perhaps the English labourer will be found turning his attention to neglected sources of profit which he has never yet fairly experimented with, and bee-keeping is certainly one of them. But even when the busy bee is kept simply as a hobby, there are few hobbies so inexpensive and so harmless. Croydon offers very great facilities and advantages to the apiarian. Nearly any number of bees might be kept within its area. They would not only be a source of profit and delight to their owners, but also to others whose gardens they would range over in their search for honey-laden flowers. Attention having now been fully drawn to their merits, why should not bees be more generally impressed into man's service, and made to work for him? I know of no reason except the apathy and neglect which has too long been exhibited with regard to them. It may be presumed that Mr. Drage's interesting lecture, abounding as it did in practical hints and valuable suggestions, will awaken an interest in bees far greater than has ever been felt before; and as the outcome of it I hope bee-hives will be multiplied in this neighbourhood to a vast extent, and plenty of honey reward the enterprise of enthusiastic bee-keepers.

BEE-KEEPING IN ENGLAND.

From the American Bee Journal.

We are exceedingly pleased to notice the rapid strides that are being made in England towards perfection in the scientific management of bees. That excellent periodical, the *British Bee Journal*, fairly bristles with the subject of advancement in bee-culture, and rational and scientific management. Bee and honey shows are abounding in almost every county, while the national society, called the British Bee-keepers' Association, shows a wonderful state of prosperity. Its lady president, the liberal and very popular Baroness Burdett Coutts, has subscribed 125 dollars, and its energetic honorary secretary, the Rev. Herbert R. Peel, has subscribed 100 dollars, towards defraying the expenses of the honey show, which took place last month, in the Royal Horticultural Gardens, at South Kensington, London. All England seems to be alive on the subject of 'How to produce the best honey in the most marketable shape.' The present number of members of its national society is about 160, and the plan adopted as to membership is quite interesting. It presents a key to financial success, as well as how to get up an interest in bee-culture that cannot fail of being abiding. It is this:

Those members whose annual subscription is five dollars and over, are eligible for election on the Board of Directors or Managing Committee, while all others are entitled to one vote in such election, for every dollar subscribed.

They have a tent erected, and in it the various manipulations of the apiary are performed competitively. A circle of twenty feet in diameter in the centre being devoted to the manipulations, while a promenade of six feet wide, encircling it, is reserved for visitors. This presents an idea for our national society to think about—something that will give it an impetus, heretofore unheard of.

These manipulations are just the thing to create an interest, to bring together not only the experts, but those who need instruction in scientific management.

We feel assured of this, by the experience of the past year, in the apiary of the *American Bee Journal*, in this city. How often do we find one of the greatest attractions for our visitors to be allowed to witness manipulations with our bees! Some have had but a limited experience with Italians; others as limited an experience with the manipulations of the apiary, especially upon scientific principles. And often, as they retire, do they say, 'It has been the greatest treat of my life. I am delighted with what I have witnessed in the apiary, as well as in the museum of modern appliances.'

We do hope our national society will, at the next meeting, take advance ground and either foster, encourage, or inaugurate an exhibition, not only of apiarian implements and honey, but also of manipulations with bees. Officers with energy and ability to manage can easily be secured, who will make the honey and bee show a success, from its very inception. It can be done, and we think all will say it ought to be done.

Would it not be well for the national society to offer medals as prizes, to be awarded at the honey and bee shows of the different State and district associations within its limits?

What do bee-keepers say about these crude thoughts? We shall esteem it a favour if those interested will, within the next ten days, send us their opinion. Being secretary of the national society, we will collect, classify and present them to the society at their meeting next month, and endeavour to have the society inaugurate some good practical work in this direction. We hope to obtain hundreds of responses to this request within the next ten or fifteen days. What is done must now be done quickly. If our ideas are of any value, back them up—if not, kindly show us the more excellent way. This we ask, especially as we desire the welfare of the association and the advancement of bee culture.

BEE-KEEPING IN IRELAND.

A FARMER'S EXPERIENCE.

We commenced the season (says a correspondent of the *Agricultural Gazette*) with four stock hives, and we now wish to place the results before all our brother farmers. We have long contended that nothing about the farm pays better, if properly managed, than the apiary. Of course we are not quite so foolish yet as to recommend anyone to devote time to this pursuit which ought to be expended upon more important things, for there is enough now to do on the farm without calling off our attention; however, we may be allowed to state, our wives and daughters can do all that is wanted about the bee-farm, and we are all thankful when they can make sufficient by the sale of swarms and honey, to purchase little necessaries, not to mention comforts, required in every house.

Now to the point, but allow us to state in the outset, we could have made very little profit, if we had conducted the apiary in the old-fashioned plan of cottage skeps. Ours is an experience of many years, an expensive, and dearly-bought experience, too, but we are now determined to use only Mr. Robinson's chamber hives, which are only 12 inches square, internal measurement: this, combined with the cheap tin honey extractor, will turn every season into a profitable one, and make bee-keeping not a chance, but a certainty.

Two of our hives were large bar-frame hives, they commenced the season in good condition, but somehow they have been almost worthless. We followed the advice of Mr. Pettigrew, and procured the hives (20 bars in each hive), more by the way of testing them, than for any other purpose: but we have now discovered that it takes the queen all her time to keep up the stock, without thinking of swarming, for no swarms issued from these hives during the whole summer; and now we have taken all the honey from them, to transfer the bees to our hives, they have yielded us about 40 lbs., which will, perhaps, bring in 45*s.* at the most. If this had been our sole experience in bee-keeping during the summer of 1878, we dared not appear before our readers.

The other two hives were kept in the same garden, under precisely the same conditions, except that they were in hives of our own make, with, as stated above, a space of 12 inches square for them to work in. Instead of being disheartened, as were their adjoining neighbours, by the large hives, they worked with a will, and sent out six swarms. Some of our good friends advised us to place supers on them, but we do not believe in non-swarming hives; and very often it prevents swarms from issuing, when they take to working in the supers, for the simple reason that increased space tends to keep the temperature too low for swarming.

Well, what about the results? we can speak about the plan, &c., afterwards:—

We sold four swarms, at an average of 15*s.* each	£3	0	0
Honey already sold	6	17	0
We have four well-filled hives still remaining ...	4	0	0
	£13	17	0
Total proceeds from the two hives, say	£13	17	0
Cost of timber for hives and sugar for spring feeding	0	17	0
Net result for the Year	£13	0	0

With the above worked-out results—done, too, without neglecting any other department of our work, for our good wife keeps a sharp out-look upon the favourites, because, perhaps, they have been of material help to her. At all events, our little ones reap the benefit in good winter clothing; and a few years since she presented me with a beautiful gold watch, made from the honey-harvest, worth 15*l.*

Need we say with 20 stock hives a clear yearly income may with ease be realised of 120*l.* per annum, for hitherto we have found no difficulty in finding purchasers for both our surplus stocks and honey. The latter is far different in appearance to that sold by our cottagers, for in the first place, it is seldom allowed to remain in the hives over a week: thus it does not become solid and sugary, like old honey. This is explained from the fact, honey procured from hives only once in the season, much of the water must have evaporated from the high temperature to which it is constantly exposed. It also sometimes causes it to be dark-coloured. Ours, on the other hand, is a rich syrup-like consistence.

The simple plan we adopt is to take out the comb at each end of the hive, about once a-week in the height of the honey season: these the bees reserve only for honey storing whilst the central combs are occupied in breeding. First, blow a few whiffs of smoke in the entrance to quiet the inmates, then remove the top board and take out the bars, gently brushing off the bees. If the cells are capped, remove them with a sharp knife and place them in the extractor. Upon giving it a few swings the honey is all taken out, the bars, with the comb uninjured, is given back to the bees in a few minutes. Very frequently in a few hours afterwards they commence to refill the cells.

We have long wished to introduce this system to all our apiaries; it is not new, the invention is far from being recent, although we can scarcely say where it had its origin. No English bee books refer to it,* though we hope to have in the press shortly a small volume treating upon the system, so as to enable anyone handy with joiner's tools to make the hives by the fireside on the winter's evening.

In the meantime we shall only feel happy in aiding any bee-keeper wishful to test the system.—R. R.

THE NATURAL HISTORY OF THE BEES.

Translated and abridged from the work of the Abbé Collin. Fourth Edition. Paris, Berger, Levrault & Co. 1875.

(*Continued from Vol. V. p.* 205.)

Of the Honey-combs.—The first care of the bees, as soon as they are established in a hive, is to commence the constructions which are to serve for their own habitations, as well as for the nursery of their young, and as a store-house for their food. These constructions are called combs. Each comb has two faces, with an enormous number of cells in each face. There are three sizes, or, more correctly speaking, four sizes of cells in a hive. The smallest-sized cells are used for rearing the young workers, the larger-sized ones for rearing the drones or males, and both are equally used for storing honey. Besides these, there are the royal cells, used only for rearing the young queens. Besides these, there are cells of an intermediate size, used to join the larger to the smaller cells. The same piece of comb may contain cells of all these sizes, either on one or both faces. In the latter case the bees make the larger and smaller cells fit into each other by a sufficient number of cells of an intermediate size. The small cells occupy almost exclusively the centre of the hive, and are far more numerous than the larger ones.

The royal cells are usually placed either at the edge of the combs or in the passages formed in them. They are, at the commencement, of nearly the same size and shape as an acorn-cup. The bees lengthen them out as the royal insects grow in size, and give the walls a consider-

* We fear 'R. R.' does not read English bee books, or newspapers either, or he would not make such an erroneous statement. Nevertheless, he admits that the system is not new, and it would therefore be interesting to know where he learned it. Perhaps, after all, it is only intended as a 'puff' for the 'small volume in the press.'—Ed.

able thickness. The outside is indented very like a sewing thimble. The walls are eaten down, and they are in part destroyed as soon as the young queens come out of them. The bees, as a general rule, commence to build from the top of their hive and build downwards, though they are able, under certain circumstances, to commence from below and to build upwards. This occurs often if the upper ring of an ettl hive is removed, and its place supplied by an empty ring. In this case the constructions are often very fantastic. The bees often first build from below upwards, and then from above in a contrary direction downwards, so that the combs as it were cross each other when they meet. It is always possible to make the bees build in the direction wished for by fixing strips of comb or guides to the top of the hive. The cells in the combs slope slightly with the bottom downwards, in order to retain the honey better that is stored in them. This renders care necessary in reversing a hive, or the portion of one. A piece of honey-comb of ordinary bees' cells, closed in and filled with young brood, measures ·95 of an inch in thickness, which gives the depth of each cell outside as ·48 of an inch, or nearly half an inch. Drone-comb measures 1·34 inches in thickness, giving ·67 of an inch as the depth of each cell. The cover of the cell of the common bee is in a sensible degree convex at first, but becomes flat as the insect approaches maturity. The cover of the drones' cells is very pronouncedly convex. The interval between each comb is about 4-5ths of an inch. Both the cells of the common bees, and also of the drones, are hexagon in shape. A good-sized hive contains rather over 50,000 cells, of which between 4000 and 5000 are usually the cells of drones.

[*Translator's note.*—The Abbé gives a number of elaborate figures in his books regarding the exact size of the cells in each hive, but I have not given them, as he is making further experiments to verify their correctness.]

The covering of the cells, both of the common bees and of the drones, which contain the young brood, is yellow and convex, while that which closes the cells containing honey is white and flat. If the insect in the cell is dead, the cover of the cell becomes slightly depressed in the centre or concave. With a little practice, the cells containing young brood, and those containing honey, can readily be distinguished one from the other.

Products of Bees.—These are four in number, viz., honey, pollen, propolis, and wax. Of these the bees collect the three first, while they manufacture wax from honey, with or without pollen. Every one knows that honey is collected by the bees from flowers; but to flowers may be added the stalks of certain plants, as the winter vetch, and the leaves of certain trees, as those of the evergreen oak, the aspen, the spruce, the silver fir, &c.

The most favourable time for the secretion of honey is mild weather, when the air is not too dry. Cold dry weather, with the wind in the north, is much against it; wet weather also dilutes the liquid honey in the calyx of the flowers. In wet summers the bees on the highlands do the best; in dry summers they succeed best in the valleys. Heavy dews, as well as rain, interfere with the honey crop.

It is an almost certain indication of a glut of honey when the bees are as active at five or six o'clock in the evening as they are in the middle of the day. Besides this, when the honey is coming in fast, there will be a strong smell of it about the hives, and much buzzing within them. Especially one may hear their buzzing very strong at night in swarms that have been recently hived; for the bees build the new comb during the night almost exclusively, and very little during the day-time.

When the bees come into the hive from foraging, they loose the honey they have brought with them in the first cells that come to hand. It is afterwards stored for keeping in the upper part of the hive, and in the side combs.

Wax.—Wax is the elaboration of the sugary matter found on the flowers by certain organs of the working bees. It is found under the rings of the belly of the bee in the form of little plates. The bee seizes these little plates of wax with one of its hinder legs, carries them to its mouth, and after having masticated them for an instant applies them to the comb on which it is engaged.

Notwithstanding the experiments that have been made to ascertain the amount of honey that is required to obtain a certain quantity of wax, it is almost certain that practically very little honey is lost to the general store from the building of the combs. The author is in a position to assert this from a long series of experiments made in the years 1862 and 1869. Take, for instance, any two hives in your apiary which for a week have gone on increasing in weight in the same proportion. Give to one of them a super or a nadir, fitted with ready-built combs, while to the other you give an empty super without combs, and you will find that the latter goes on increasing in weight, almost, if not quite, as fast as the former, notwithstanding the comb with which it will fill the super.

In 1844, two workers of the first order (Messrs. Dumas and Milne-Edwards) renewed the experiments that Huber commenced on the origin of wax. They obtained an ounce of wax from a pound of sugar, but only two-thirds of an ounce of wax from a pound of honey. This is nearly the same result as Huber obtained.

Dzierzon also is of opinion that hives in which the comb has been cut out freely in the spring develope a greater activity than if no comb had been taken from them, so that the wax taken away is pure gain. He admits, however, the utility of ready-built combs when a heavy flow of honey is coming in. Baron Berlepsch says that wax is made of honey or sugar mixed with pollen, but that it can be made with honey or sugar only, though not so economically as when pollen is mixed with it.

The experiments made by Gundelach go to prove that it requires twenty loths of honey without pollen to make a loth of wax, while Berlepsch and Donhoff have shown that when the bees have pollen at their disposal they only require 14½ loths of honey for one loth of wax. Berlepsch adds, 'The practical result would be, if you allow even ten parts of honey to one of wax, that it would be a loss to cut away the wax-combs, and let the bees build them again.'

The author would observe that all these experiments were made in a closed room; and that he can only account for the difference between the experiments, and what seems to be the actual result in practice, by assuming that bees in a state of perfect liberty, *i.e.* of nature, elaborate wax more readily than in a closed room. He believes that he proved satisfactorily in the *Apiculteur* of December 1869 and January 1870, that the loss of honey in the preparation of wax is scarcely as three to one.

Pollen.—The pollen is the dust found on the stamens of flowers. Generally it is yellow, but from May we see it red, white, bronze, or even black. The bees collect it in the pockets on their hind legs, and store it in the cells nearest the brood-nest. It is not found in the drone cells. A bee loaded with pollen when he enters the hive introduces his two legs which carry the pollen into the cell where he intends to deposit it, and then rubs them one against the other, as well as against the sides of the cell. The bees often store honey on the top of the pollen, and in that case the cells are sealed in. The pollen serves to nourish the young brood. It is mixed with honey, and given to the young insects in the form of pap. The author has noticed that the two loads of pollen which a bee brings back are always of the same colour, which proves that the bee always completes its

load of pollen from the same flower. The bees collect much more pollen in the spring than in the summer-time; but the harvest of pollen is always proportionate to the wants of the hive. In the summer time, after the honey gathering has ceased, they bring in but little pollen; but this is not because they cannot find it. If you commence feeding a hive then, you will find that the bees at once go out and collect pollen, and begin to raise a young brood, which they will nourish with it—*i.e.* if you give them the means of raising young brood, they will speedily find pollen to feed it on. Pollen stored for the winter, if not used, becomes useless, and will be cut away and cast out of the hive in the spring by the bees in a strong hive.

Before the flowers begin to yield pollen in the spring the bees find a substitute for it in the flour of various leguminous plants, as bean-flour, pea-flour, and also in the flour of rye. They will readily take any of these for pollen and use it as such, but as soon as the flowers begin to yield pollen they leave such spurious pollens alone. These spurious pollens, however, are very useful to stimulate early breeding in the spring. It ought to be offered the bees perfectly dry, and scattered on something at a short distance from the apiary. The author, in March 1858, observed his bees collecting pollen from the dust of a mill-wheel near his house. It was this that first led him to observe the use of certain descriptions of flour for pollen.

Propolis.—Propolis is a resinous substance of a reddish brown colour. Huber observed the bees collect it on the buds of the poplar, and Hamet asserts that the willow, the birch, the elm, and certain evergreens furnish it also. Propolis becomes soft in hot weather; dry and hard in cold weather. It is from July to September that the bees especially search for the propolis, to cover the inside of their hives, to fill up all cracks, and to glue it to the floor-board. The bee carries the propolis in the pockets of the hinder legs, as it does the pollen; but one is easily distinguished from the other, as the pollen is a dusty powder while the propolis is shiny and resinous. If you put an old empty hive down in front of your apiary you will see with pleasure how quickly the bees can strip it of propolis. Propolis is easily dissolved in ammoniac, turpentine, or spirits of wine.

Young Brood.—This exists in the hive under three forms, viz., eggs, grubs, and chrysalides. The egg is oval, a little bent up, and of a whitish blue colour; it is laid at the bottom of the cell, and is glued there by one of its ends by a sticky substance which covers it all over. It hardly differs in appearance from the egg of a large blue-bottle fly. The warmth of the hive hatches the eggs spontaneously. From the egg there issues a small white worm, called a larva. It has no legs, and rolls about at the bottom of the cell. The nurse bees at once bring it a supply of white, insipid pap, with which they surround it, so that as it rolls itself about it always finds some food within its reach. At first white and insipid, this pap or young bee food has a stronger taste of honey imparted to it, as the little insect grows bigger, till at last the pap becomes altogether transparent, and sweet to the taste. It is prepared by the bees in their own stomach on purpose for the nourishment of the young insects, and its strength is suited in consequence to the age of the latter. As soon as the larva has acquired its full development, which it has done when it fills the cell, the bees close the cell in with a wax lid. The larva in the cell then spins a cocoon round himself, from which, some days after, he emerges in the state of a nymph or chrysalis—the condition of apparent death which the larvæ of insects pass through before becoming perfect insects. In this last stage all the principal parts of the bee are sufficiently distinct and developed. The bee chrysalis is very white. After a few more days in this state it breaks through the wax cell and issues thence a perfect bee. Its colour then is a clear grey, and it is only after two days that it acquires strength enough to fly.

The pap on which the royal larvæ are fed differs in quality (though not quite at the commencement) from the pap given to the ordinary bees and to drones. In taste it is rather less insipid, and is rather sharper, and more acid. It is given them in such quantities that the grubs never can consume it all: while the quantity given to the ordinary grubs is so exactly proportioned to their wants that none whatever remains at the bottom of the cell when the little insect begins to weave its cocoon.

The egg of the bee measures in length a millimetre and a half (½ of an inch) by half a millimetre (one-twentyfifth of an inch) in breadth.

When the queen-bee is going to lay she first looks into the cell where she intends to deposit it; then she goes forward a little, and then thrusts the lower part of her belly into it. She remains a second or two thus, and then withdraws her body, after having deposited an egg.

Baron Berlepsch ascertained by a series of carefully conducted experiments that it required 131 grammes (four and a third ounces) of pap to nourish 1002 larvæ from the time of hatching up to the sealing up of the cells, all of which must go to form substance, as the little larva loses nothing, unless it is by a process of insensible transpiration. In the above experiment the bees were in a closed chamber, they had with them an unfertilised queen. They weighed 702 grammes (22½ ounces), and they consumed in twelve days and nights 277 grammes (nine ounces) of food.

Ordinarily the bees brood over the closed cells containing the cocoons of the nymphs in order to hatch them. But in very hot weather this is not necessary, and the insects are hatched by the natural heat of the hive.

(To be continued.)

The Busy Bee.—There is no insect more thoroughly objectionable than the bee. At the first dawn of day the bee sets out to hunt for honey, and continues at that sticky occupation until night. So far as is known the bee receives no salary whatever, but works either to pamper the pride of a fat and useless queen, or because it is a prey to a miserly passion for heaping up honey. In the former case the bee deserves the contempt of all free men, and in the latter it displays a loathsome mental and moral degradation. In either case the bee's willingness to do unnecessary work is an insult to intelligent human beings. Scientific persons are fond of telling us of the bee's tremendous geometrical knowledge, and parade in proof thereof the fact that it builds hexagonal cells, hereby packing the greatest number of cells with the smallest possible amount of wax within a given space. They fail, however, to notice that there is no law requiring bees to build their preposterously little cells. If they were really intelligent insects, and knew the comparative value of wax and honey, they would build cells holding a pound of honey each, and thus enable a human being to eat honey without at the same time filling up the interior of his person with wax. This simple plan has never yet occurred to the bees. They go on building their antiquated and clumsy cells without once undertaking to improve upon them. They may be intelligent, but they do not prove it by adhering to a pattern of cell invented by their antediluvian ancestors. To hold up these miserly and wantonly busy insects to the admiration of mankind is a positive outrage. Dr. Watts, who openly forbade all interference with dog-fights, was in the constant habit, when he met a bee, of politely inquiring, 'How doth the little busy bee?' thus treating the insect with a courtesy which would not be out of place if extended to a bishop. The pernicious influence of Watts in this matter has been widespread. It is time that a protest should be made against the bee, and that mankind should henceforth be taught the plain and obvious truth that an insect which spends its whole existence in working and stinging is even more unworthy of emulation than is the mosquito of the book agent. *Sporting Times.*

THE BUZZING OF INSECTS.—The old naturalists thought generally that the buzzing of insects was produced by the vibrations of the wing, but they had scarcely attempted to analyse this phenomenon, and their opinion was abandoned when Reaumur showed that when the wings are cut a blow-fly continues to buzz. Other explanations of the phenomenon have been advanced by various naturalists, but none of them are satisfactory. M. Jouset de Bellesme has been making some investigations on the subject, and, after proving that previous theories are unsatisfactory, he describes the results of his own researches. To avoid confusion, it should be distinctly understood what is meant by buzzing. In the scientific acceptation it means to imitate the sound of the humble-bee, which is the type of buzzing insects. But the humble-bee gives out two very different sounds, which are an octave of each other—a grave sound when it flies and a sharp sound when it alights. We say, then, that buzzing is the faculty of insects to produce two sounds at an octave. This definition limits the phenomenon to the hymenoptera and the diptera. The coleoptera often produce in flying a grave and dull sound, but they are powerless to emit the sharp sound, and consequently do not buzz. There are two or three ascertained facts that which will serve as guides in the interpretation of the phenomenon. First, it is indisputable that the grave sound always accompanies the great vibrations of the wings, which serve for the translation of the insect. It is easily seen that this sound commences as soon as the wings begin to move, and that if the wings be cut off it disappears entirely. The sharp sound is never, on the contrary, produced during flight; it is only observed apart from the great vibrations of the wings when the insect alights, or when it is held so as to hinder its movement, and in that case the wing is seen to be animated by a rapid trembling. It is also produced when the wings are entirely taken away. From these two remarks we may draw the conclusion that the grave sound belongs properly to the wings, that it is caused by their movements of great amplitude. There is here no difficulty. As to the sharp sound, it is certainly not produced by the wings, since it survives the absence of these. Yet the wings participate in it and undergo a particular trembling during the production of this sound. To discover the cause it is necessary to go back to the mechanism of the movement of the wing. It is known that among nearly all insects the muscles which serve for flight are not inserted in the wing itself, but in the parts of the thorax which support it, and that it is the movement of these which acts on the wing and makes it vibrate. The form of the thorax changes with each movement of the wing under the influence of the contraction of the thoracic muscles. The muscular masses intended for flight being very powerful, this vibratory movement of the thorax is very intense, as may be proved by holding one of these insects between the fingers. But as the vibrations are repeated two or three hundred times per second, they give rise to a musical sound, which is the sharp note. In fact, the air which surrounds the thorax is set in vibration by that directly, and without the wing taking part in it. There are then two simultaneous sounds, one produced by the vibration of the wings and the other by the thoracic vibration, the latter twice as rapid as the former, and therefore an octave. This is why in flight only a single grave sound is heard. When the thorax moves alone a sharp sound is produced. This, M. de Bellesme believes, is the only explanation that can be given of the mode of production of the two sounds which constitute buzzing.—'*Times*,' *Wednesday, Sept.* 18, 1878.

A very interesting lecture on 'Bees' was delivered at the Mechanics' Institute, Chichester, on Wednesday last, by the Rev. H. D. Gordon, Vicar of Harting.—*West Sussex Gazette, Nov.* 14*th.*

A LEGEND OF THE HIVE.

Behold those winged images,
Bound for their evening bowers:
They are the nation of the bees,
Born from the breath of flowers.
Strange people they! a mystic race,
In life, and food, and dwelling-place.

They first were seen on earth, 'tis said,
When the rose breathes in the spring
Men thought her blushing bosom shed
These children of the wing:
But lo! their hosts went down the wind,
Filled with the thoughts of God's own mind.

They built them houses made with hands,
And there alone they dwell:
No man to this day understands
The mystery of their cell.
Your mighty sages cannot see
The deep foundations of the bee.

Low in the violet's breast of blu
For treasured food they sink;
They know the flowers that hold the dew,
For their small race to drink.
They glide—King Solomon might gaze
With wonder on their awful ways.

And once—it is a grandame's tale,
Yet filled with sacred love—
There dwelt within a woodland vale,
Fast by old Cornwall's shore,
An ancient woman, worn and bent,
Fallen nature's mournful monument.

A home had they, the clustering race,
Beside her garden wall,
All blossoms breathed around the place,
And sunbeams fain would fall.
The lily loved that combe the best
Of all the valleys of the West.

But so it was, that on a day
When Summer built her bowers,
The waxen wanderers ceased to play
Around the cottage flowers.
No hum was heard, no wing would roam:
They dwelt within their cloistered home.

This lasted long—no tongue could tell
Their pastime or their toil:
What binds the soldier to the cell?
Who should divide the spoil?
It lasted long—it fain would last,
Till Autumn rustled on the blast.

Then sternly went that woman old,
She sought the chancel floor,
And there, with purpose bad and bold,
Knelt down amid the poor.
She took—she hid—that blessèd Bread
That is, what Jesu, Master, said!

She bare it to her distant home,
She laid it by the hive,
To lure the wanderers forth to roam.
That so her store might thrive.
'Twas a wild wish, a thought unblest,
Some evil legend of the West.

But lo! at morning-tide, a sign
For wondering eyes to trace:
They found above the Bread, a shrine
Reared by the harmless race.
They brought their walls from bud and flower
They built bright roof and beaming tower.

Was it a dream? or did they hear,
Float from those golden cells,
A sound as of some psaltery near,
Or soft and silvery bells;

A low, sweet psalm that grieved within,
In mournful memory of the sin.

Was it a dream? 'tis sweet no less;
Set not the vision free.
Long let the lingering legend bless
The nation of the bee.
So shall they bear upon their wings
A parable of sacred things.

So shall they teach, when men blaspheme,
Or sacrament or shrine;
That humbler things may fondly dream
Of mysteries divine:
And holier hearts than his may beat
Beneath the bold blasphemer's feet.

From the Cornish Ballads, by Rev. R. S. Hawker, late Vicar of Morwenstow.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

THE VALUE OF CYPRIAN BEES ACCORDING TO MR. W. HEPWORTH DIXON.

'*Bees swarm about the garden*' in September. That's very nice! '*Honey is an object of man's greatest care.*' '*But bees lay up no excess of food!*' '*At best they have none to spare.*'* But what they have the hornets rob them of, though these latter insects are easily entrapped. After this testimony from such a learned gentleman—a gentleman who learns more about a country in a few weeks than others do after many years' residence therein†—we need not regret that Messrs. Cori and C. Perrine were unable to supply us with some Cyprian queens.—'RAVEN,' JUNIOR.

M. CORI.—CYPRIAN BEES.—APIARIAN LITERATURE.

Your readers will, I am sure, hear with regret that M. Cori, of Bohemia, who has devoted a long lifetime to the importation and cultivation of foreign varieties of bees, and who is the only person that has ever imported bees from Cyprus, has, for the last six months, been very ill. This is the reason why a description of the various races of bees, more especially of the Cyprian, and which we have had in hand for some time, has not yet been sent you for publication. I trust, however, that it will shortly be completed, and your readers will then be able to judge whether the accounts of the Cyprian bee that are in circulation have any foundation in fact. I have the promise of a Cyprian colony next season; but as my apiary is surrounded by black bees, and I therefore fear contamination by them, I shall be glad to hear from any of your readers who live in an isolated position—such as that described by Mr. Poole in the *Bee Journal* of February 1876.

I take this opportunity of directing the attention of your readers to Dr. Dzierzon's recent work, 'Rationelle Bienenzucht,' of which the author kindly sent me a copy. It is published by Ad. Bänder, of Brieg; and as regards the portion treating of the physiology and nature of the bee, it is far in advance of any book yet published, and is most interesting. Professor Cook's new 'Manual of the Apiary' (America) is also worthy the attention of your readers.—J. P. JACKSON, *Hertford*.

BLACK *v.* LIGURIANS.

As I have noticed some correspondence in the *B. B. J.* under this heading, I will give you my experience. I now only keep Ligurian bees; but on the 22nd of last June I found a double swarm of black bees in a hedgerow, so I took them in two straw hives and joined them together afterwards, making one strong swarm. On the same day I took a Ligurian swarm, which I placed in a Woodbury hive; so they had a fair start, the blacks having the advantage in number, as well as a rather smaller hive. By the 1st of August the Ligurian hive was quite full of honey, and so full of bees that they were hanging out, nearly touching the ground. So I took two full bars out of the hive, which gave me 6 lbs. of honey, and also placed a Crystal Palace super on, so as to give more room: and by the end of the month the C. P. super gave me 4 lbs. of honey, and they had also nearly filled up the two empty bars in the hive, as the hive weighed good 30 lbs. I have kept it as a stock. Now for the black swarm; I destroyed them on the 10th of August, and the whole hive only gave me 16 lbs. of honey. There were about seventeen acres of red clover within a quarter of a mile of my garden. Would this cause the difference? I do not agree with your correspondent that Ligurian bees are more easily managed than black bees: in my short experience I have found it quite the contrary; and I feel certain that bees know people. My groom had to put on a bee-veil before he could go into a small hay-field close to my bees this year. The bees followed him about in a most extraordinary manner, and at no time during the summer could he go within ten yards of the hives without being stung. Yet, I could stand by the hives for hours together without being attacked, and so could my man work in his own garden, where he has three hives of black bees without their molesting him. Again, with my last man my bees never took any notice of him. Therefore, I think bees must know people—my Ligurians certainly do.—CAPT. C. A.

* The words in Italics are the *ipsissima verba* of Mr. D.

† The writer says,—'Mr. Hepworth Dixon paid a visit to Switzerland, and wrote a book thereon after a month or two's sojourn there. He knows much more of the country than I who lived there some fourteen years. Charles Dickens lived there two years, and wrote a book about seeing Mont Blanc from his rustic arbour. He could no more see the mountain than he could the mountains on the other side of the moon. I lived in a house close to where he had resided, and much above it, and I could not see Mont Blanc. Forster rectified this statement in a following edition; but these are the facts. These clever authors make awful "guesses at truth" sometimes.

ARTIFICIAL COMB-FOUNDATION.

TRANSLATED FROM THE 'ALSACE BEE JOURNAL.'

The enclosed *resumé* of a series of letters which have appeared lately in the *Alsace Bee Journal* appear to me so well conceived, so much to the point, and so much in accordance with your teaching, that I cannot help thinking they will find favour in your eyes, and a place in your *Journal*. There is another letter on fixing the wax-sheets in the frames, and dodges to prevent them curving and wobbling, which, if you like, I can send hereafter; but they seem pretty much identical with your own writings on the subject.

I hope the papers may seem interesting to you as they struck me as particularly to the point and practical.—G. J. PEARSON, *Nancy, France, 9th December*, 1878.

'You ask me, my dear friend, to give you some of my ideas about artificial comb-foundation. I am not infallible, however, myself, and all that I can do is to tell you the results of my experience, as I have found them, and I trust that I may not prove a broken reed to lean upon, while I would desire to avoid the appearance of forcing my opinions on you or any one else.

'From the first dawn of mobilism in bee-keeping, bee-keepers recognised the fact that empty frames, or frames furnished merely with a wax-guide, if put into a hive in the month of April were very apt to be filled with far too much drone-comb. Measures of all sorts were tried to prevent this, but without success; and it is only about fifteen years ago that the first results, which seemed to answer the purpose, were obtained. Mehring, a cabinet-maker in Rhenish Bavaria, was the first man to throw a ray of light on the subject. He formed some rough comb-foundations, which were cast in wax on a wooden mould, on which imitations of the bases of honey-cells were engraved. To the delight of the inventor the insects accepted these foundations, imperfect as they were, and at once began to erect comb upon them. The problem was thus solved, but as is generally the case all the improvements came from the outside world. Dammler, of Homburg; Kuntz, of Jœgerdorf; Sand, of Gundau; Jacob, of Franenbrunnen, and other able fellow-workers followed rapidly in the traces of Mehring. Since 1869, however, Mr. Otto Schulz, of Buckow, who has spared neither expense nor trouble in obtaining the best materials and most perfect workmen, has undoubtedly furnished us with the best artificial foundations yet obtainable. But we may rest convinced that better results than these will ere long be at our command. Even within the last month Mr. Junger has furnished several eminent bee-keepers both in Germany and abroad, with specimens of perfect comb, fabricated by him.

'Now, as to the utility of artificial comb-foundations. It is pretty well admitted by all bee-keepers now-a-days that every pound of wax costs at least ten pounds of honey, and, putting the wax at its highest price, and the honey at its lowest, the bee-keeper will sustain a money loss in this respect alone of at least 75 per cent—that is to say, there has been a waste of labour to this extent in the hive for every pound of wax that is formed. It is all very well if we have hives full of combs; they can be removed, emptied with the extractor, and replaced, to be filled again by the bees. But few bee-keepers are so lucky as to have empty combs at hand with which to fill their hives in spring, which are destined to receive their swarms; thus the combs must be built to fill them. Now, this is not only a waste of labour, but, what is worse, it is a waste of time, just at the most important season of the year, for often when the most precious moments of the honey season are passing rapidly away, the greater part of the occupants of the hive will be employed either in the fabrication of the cells in which to store the precious crop, which, after all, they will probably miss, or else in keeping up the necessary temperature for the exudation of the wax. So the honey crop is lost, while the gatherers are occupied inside the hive.

'I am well aware that many undoubted authorities in bee-keeping hold that if there are no combs to build, there will be a proportionately smaller activity among the bees, and that an equilibrium is thus produced. This seems to me far from probable. It is far more likely that want of activity in the hive arises from want of air, and want of space, and if you remove two or three full frames, and replace them by empty ones, and so give the bees something to do, you will find the normal activity of the hive at once restored. That the wax-producing organs of the bees are intended for use and not to lie idle, is of course uncontradictable; but at the same time there is every reason to suppose that, if for the time the bees are not called to put them in motion, they can devote their superfluous energy to the collection of honey.

'But in using the artificial comb-foundations there is no idea of supplying the bees with a better article than they can make themselves: what we do is to assist them, and we do it thus:—In a strong hive, suspend your wax-foundation in a frame between two other frames, filled with ready-built comb; if the flowers are in bloom four days will be sufficient for you to see the cells nearly completed, some honey stored, and a large number of eggs already deposited. I have often seen eggs laid in cells, of which the walls were, so to say, scarcely commenced; and so it comes to pass that the queen, having the whole area of the artificial comb sheet placed at once at her disposal, she deposits her eggs with a rapidity impossible, if she had to wait for the building of the cells in the regular way. Thus we obtain (1) Rapid increase of population; and (2) As a corollary, rapid and certain storage of honey.

'The objection that the mere foundations of the cells can be of but little use to the bees, which is sometimes urged, carries no weight with it, inasmuch as the sheets of comb-foundation are of a sufficient thickness to allow of the bees digging out the cells, while they form the lower part of the walls with the pellicles of wax which they excavate from the foundations. As the walls become thinner, the cells become longer, and for the most part it will be found that half the depth of the comb is formed from the yellow wax of the artificial foundation, while only the upper half of the walls is constructed of the naturally formed white wax of the bees, thus economising a proportionate amount of honey which remains to be stored in the cells.

'Then, as to the gain. In time it would be as reasonable to say that a brickmaker who finds his clay on the spot, cannot make more bricks in a day than another who has to fetch his materials himself from a distance of two or three miles, as to assert that the wax furnished to the bees in the artificial foundations does not expedite the building of the cells. As for the economy in money, it may be fairly said that every pound of wax furnished to the bees in the shape of foundations will save them ten pounds of honey; and it may be left to each one to calculate the saving from the relative price of wax and honey in his respective neighbourhood, compared with that of artificial comb-foundations.

'To sum up then, it cannot be said that artificial comb-foundations induce idleness among the bees, for the work of building has in all cases to be carried on, though part of the materials is furnished, and so time and labour are economised; and, secondly, that they are the surest means of enabling the queen to carry out her duty in laying, and thereby rapidly strengthening in numbers the population, which is the surest road to success in bee-keeping.

'In my next letter I shall treat of the still more im-

portant part of the question, viz., the prevention or restriction put on the production of drones in a hive.

II.

'It may be taken as an axiom that the bees are not as wise as their prototypes the Amazons, who in times of old, as we read, ruled over half of Asia, but never allowed any gentleman among them except once a year. Unlike them, the bees, if left to themselves, will rear many hundreds of fat, lazy, handsome gentlemen, who, from their size and corpulence must consume a fearful amount of our beautiful nectar during the four months they are allowed to live. It is probable that a dozen of them, instead of several hundreds, would answer all the purposes of the hive. There are several well-known ways of combating this evil—with traps, by killing the yet unhatched brood, and by changing the places of the frames from the brood nest to the back of the hive; but all these means are insufficient and often useless. By employing artificial comb-foundations this evil can alone be thoroughly checked, as the bees in building the cells follow the foundations impressed on the wax sheet, and the only place where you will find the big drone cells are in the outer row on each side of the sheet, for about three-fourths of the way up it, and then only one row deep. Suppose you give a hive four frames with artificial foundations at the beginning of the season, the other frames being full of old comb, all of the worker size, the chances are that not above fifty drones are produced in the hive during the whole season.

'It is a good plan when the swarming season is over to prepare some combs for the following spring, and this may be done by placing a frame with comb-foundation in it outside the brood nest, and next but one to the outside, in each of your *really strong* hives. This may be removed in six or seven days when about one-third of the work is finished, and put by for the next spring. But for this plan strong hives must only be used.

'The entire suppression of drone-comb in a hive should never be attempted: as, if this is done, the bees prompted by nature, will enlarge the worker-cells, and the queen will lay unfertilised eggs in them. I have myself a frame built on Schultz's comb-foundations where this has been done by the bees. In this case the bees had eaten away the walls of the worker-cells and had substituted drone-cells over a space about two inches square in the centre of the frame. The hive where this occurred was a very strong colony, just ready to swarm, and all the other frames except the one in question contained combs with cells of workers only, all of ancient date, so that it would have been impossible for a respectable drone to come to perfection in one of them, so narrow were the cells from the repeated hatchings of former years.

'Louis Huber, one of the most experienced bee-keepers in Germany, mentions, in the Bee Journal of Eichstadt for May, 1878, that out of about three hundred sheets of artificial comb-foundation, that he had employed, during the past year, only two showed drone-cells on them; in one of these cases the wax-sheet had been accidentally torn, and in the other it had been hung in the back part of the hive [Note. The German hives have the frames hung across the hive.—G.P.]. It may be remarked that Monsieur Huber having used three hundred wax-sheets in one year is a strong proof that there is something to be said for them, as formerly this same able bee-master had spoken of them "as playthings all very well to amuse children."

'In addition to the above main benefits to be derived from the use of artificial comb-foundations, we may add the following not unimportant ones.

'1st—Perfectly straight combs, which are of the utmost importance for handy manipulation.

'2nd—Ease in renewing the brood nest as often as may be necessary. I am distinctly of opinion that the little half-sized abortions of bees which we often see in hives, are the result of the narrow cells in which they are hatched. Myself, I love to see my worker bees as big as the seed of a fat Soissons kidney-bean; and I am perfectly certain that one of these big strong fellows will do more than twice the work in collecting honey as one of the little abortions which some bee-fanciers show you with so much pleasure.

'3rd—Combs built on wax-sheets are stronger than natural combs, and therefore when fresh are more easily emptied in the extractor. In this way the fresh combs of the first year may be turned to the best account the succeeding spring, as they are the best you can have to put into the brood nests of the hives for the queen to lay in. It is certain that the fabricated wax used in the comb-foundations is stronger and more elastic than the natural first production of the bees.

'The above are all certain direct and easily-proved advantages, and to them may probably be added that the use of wax-sheets possibly tends to prolong the life of the bees in sparing them the loss of vitality entailed in secreting wax.

(Signed) 'Doctor Reisser.'

HONEY NOT CRYSTALLIZING.

I kept two jars of honey this year, each containing 25 lbs., wishing to send them away at Christmas time. Much to my disgust, when I went to pack them on December 17th I found the honey in one jar just as liquid as when I put it in. The other had set well. They stood side by side. Now what can be the reason? A part of the honey was taken from the full bars, and part from a glass super which was well filled, and the remainder came from a hive I destroyed.—Capt. C. A., *Dec. 17th*, 1878.

A SEVERE WINTER.

Towards the end of September I discovered the two side entrances of one of my strong Stewarton colonies, each five inches long, entirely barricaded with 'walls of propolis,' and subsequent examination of the entrances of friends' stocks showed how generally contraction with the same material had been adopted—our little favourites thereby displaying the wonderful sagacity with which they are endowed in forecasting the weather. In the autumn of 1877 no such barricades were built, and a mild winter followed.—A Renfrewshire Bee-keeper.

GLUCOSE SYRUP.

This is a concentrated solution of grape sugar or glucose. It is in its commercial form very nearly colourless, and of such consistence that in cold weather it but slowly finds its level. It is not, so far as I can learn, to be obtained in small quantities, being sold by the importers direct to the manufacturers who use it. And being used to a certain extent as an adulterant, none of these manufacturers will sell it again or admit that they use it. It is used, among other purposes, for syrup-making, having the property of preventing (or retarding) the crystallization of syrup of cane sugar when mixed therewith. Probably it will be useful to bee-keepers for this purpose, but so far as illegal feeding is concerned the price when packages and carriage are

paid for would be nearly as high as sugar syrup, and not so good for the purpose. It is in casks of about 7 cwt. If, however, I can obtain sufficient subscribers to divide a cask I will undertake the trouble. The price will be 25*s.* per cwt. or a little over 2½*d.* per lb. Packages will cost about 1*s.* for 14 lbs. or less for larger quantities. I shall be happy to receive, by your favour, names and quantities desired, up to the end of February; and if a cask is then subscribed for, will at once obtain one, so that it may be had in time for feeding in March.—'Dr. Pine.'

GLUCOSE.

I am glad you have taken notice in our *Journal* of this article. From the discussions going on in the American bee journals it is evident that glucose is a regular article of trade in that country for increasing the bulk of their enormous consignments of honey. In America there are large factories for manufacturing this stuff, and it appears that there are also vast establishments having special arrangements for mixing and adulterating honey with it. Their bee journals admit that it is largely used by bee keepers, and that it makes nice comb honey. Seeing that our unscrupulous cousins are exporting to this country honey adulterated with glucose, it may interest your readers to know what this vile compound really consists of. You will see that it is a much more deleterious substance than wooden nutmegs.

Chemically speaking, glucose belongs to a group of the carbo-hydrates, a class of compounds very widely distributed in the vegetable kingdom. The glucose of commerce is obtained from starch, by boiling with dilute sulphuric acid or oil of vitriol. It can be, and is, also obtained by the same process from sawdust (lignin), or any vegetable matter containing cellulose. Dirty linen or cotton rags, for example, thus treated give considerably more than their own weight of glucose. The great bulk of the sulphuric acid of commerce is manufactured from iron pyrites (disulphide of iron), a yellow, brassy-looking mineral abundantly found in nature. The acid contains many impurities in larger or smaller quantities. Chief among these are sulphate of lead (plumbic sulphate), formed by the slow action of the acid on the lead pans in which it is evaporated; various nitrogen compounds dissolved in the acid and derived from the nitric acid employed in its manufacture; and always arsenic when prepared from pyrites. There is a sulphide of iron closely allied to pyrites which furnishes the bulk of the arsenic of commerce.

Now the question is, What are the ingredients that form or may be found in this compound known as 'glucose!' First, there is a crystallizable substance called grape sugar or dextrose. Second, an uncrystallizable, gummy substance called dextrine, similar to what is used on adhesive labels. Third, sulphate of lime (calcic sulphate)*, a valuable material for furnishing the interior of houses, under the name of 'plaster of Paris,' and also useful as a manure. Fourth, sulphate of lead, an insidious poison, which cannot be eradicated from the human system. Fifth, various compounds of nitrogen, all valuable as fertilizers. Sixth, arsenic (the trioxide of arsenic, or white arsenic), a well-known deadly poison. Besides these non-volatile mineral matters there may also be injurious organic substances derived from the sort of raw material used for its manufacture. Is not this a mess of abominations to give to our bees, or to be used as food for ourselves? Do you not think that the British Bee-keepers' Association should appoint a practical analytical chemist to help them to expose adulterations of honey, and to convict and punish those offering it for sale?—J. S., *Arbroath.*

* Lime is added in the course of manufacture, to neutralise the excess of sulphuric acid: hence the sulphate.

PATERSON BAR-FRAME FEEDER.

In the description of the Paterson Bar-frame Bee-feeder in our last it should have been stated that it can also be made to work without the air-tube and stopcock by using instead a sluice with a spiral spring, or anything that will keep the syrup from running out while filling. I prefer the air-tube and stopcock.—D. Paterson, *Dec. 23rd*, 1878.

TRANSFERRING.—HONEY-GETTING.

Transferring, though much practised, will, I hope, soon become unnecessary, both with the experienced and those seeking to be, as it appears to me to be contrary to nature. If three good stocks from skeps be transferred to a bar-frame hive they will not be so profitable during the next season as they would be if left in the skeps, well cared for, and their swarms put into three frame hives. After the lapse of a fortnight the stocks may be driven and put into other ones—two or three frame-hives—according to their strength, to stand as swarms and start afresh. Any brood which will be found in the skeps should be placed on the top of the frames to hatch out, taking care to reject the remaining drone brood.

By this plan four to six good stands will be obtained full of the go-ahead energy, which transferred lots so often lack, in place of the one or two at most (if the stock cast a swarm) good stands obtained by transferring.

Many find a difficulty in obtaining their heather honey without destroying the comb, if it be not extracted within any three days of the gathering time. A good plan is to take a sharp thin knife, if the blade be worn (rounded) so much the better. Take a frame of comb, hold it upright, and scrape away the parts containing the honey, down to the bases of the cells, on both sides of the comb. This of course must be done very carefully; but it is well worth the trouble, as all the pollen and empty comb remain intact, the frames should then be returned to the hive, and after all the honey has been cleared up by the bees, the feeder is set on, and the stock will soon be as though it had not been disturbed.—Huddersfield.

PROSPECTS OF 1879.

My neighbour, Mr. G. Fox, has your 'Combination' and different other makes of hives, numbering fifteen, and all strong; and if we are spared and favoured with a good year (1879) we shall see some experiments under his scientific manipulation. I have seven strong stocks. I never knew a better October for the last thirty years; the bees gathered from the ivy freely up to the middle of November. I think I may say for our neighbourhood (Kingsbridge, South Devon) we never had a much better season, or the quality of honey more excellent, and when I take out a slab for the table, 11 in. by 8 in. perfectly flat, it is the admiration of all. We don't expect the bees to gather as much in quantity in the sectionals as in a large box.

Would you not recommend cottagers who keep bees for swarming only to use cone-top straw-hives? My idea is that the heat concentrates better for early breeding in a cone top than a flat top. I certainly class myself as more an old fogey than a pioneer. Wishing prosperity for Fairlawn for 1879.—J. E. A.

[We would recommend cottagers and all others to keep their bees in hives in which the combs are moveable.—Ed.]

THE HONEY BEE.

The *Apis Mellifica*, or honey bee—of which Virgil sang—has been an object of study ever since, and a good-sized library might be formed of works written by eminent writers on bees—such as Swammerdam, Boerhaave, Wildman, Reaumur, Huber, Huish, Nutt, Taylor, Briggs, Richardson, Bevan, &c. Stirling and neighbourhood have been long famous for bees; indeed, half a century ago, much larger stocks were kept. The decrease has arisen partly from the very uncertain seasons we have had for many years, and the trying and unprofitable returns to the owners of hives. 1877 was the climax, and stocks were never lower. Our district promises ample scope for bee-keeping—in early spring our fields and banks are yellow with broom (*Cytisus scoparius*), and whins (*Ulex europeus*), and later, we have skellochs or charlock (*Sinapis arvensis*), and clover (*Trifolium repens*), and our moors clothed with heather (*Calluna vulgaris*). Few districts are equal to Stirling and Perthshire for bees. The only desideratum is weather. Without sunshine and dry weather the bees may starve amidst plenty, and the flowers spend their fragrance on the desert air. It is hoped 1879 will be a return of the good old seasons of settled weather, and that the cottage gardens will be again well stocked with bees—the preachers of order, cleanliness, and industry. The bee-keepers in the midland districts will be glad to learn that, in connexion with the annual Stirling Flower Show, an exhibition will take place of hives, cups, supers, and honey-combs, and prizes will be given. This new feature, it is hoped, will attract many to the Flower Show. Mr. Pettigrew, writing in the *Journal of Horticulture* of the Past, Present, and Future of Bee-keeping, and dealing with a period some thirty years ago, says: 'In my native parish, and other parishes in Lanarkshire, bee-keeping had been in full swing for more than sixty years. My father, who was a common labourer, banked 350*l.* before his marriage, and this, I believe, was mostly realised from bee-keeping. He was the leading spirit there, and probably the most successful bee-keeper in Scotland. His example and success encouraged others to follow in his course. If I look back fifty years I see shoemakers, tailors, grocers, weavers, and labourers who never read a book on bees, managing theirs with great and encouraging results; and, moreover, with nothing but straw hives they had gained a comprehensive and accurate knowledge of the habits of bees and the internal workings and economy of hives. Compared to England they were at least fifty years in advance.' Bee-keeping has also been very successfully practised in Aberdeenshire. Mr. Campbell, a veteran bee-keeper in that county, had a hive a few years ago which, with its swarms, reached the great weight of 373 lbs. gross; and one of Mr. Shearer's (also in Aberdeenshire) gathered 10 lbs. in one day. Of the future of bee-keeping Mr. Pettigrew writes very hopefully, and what he says of England will apply equally well to Scotland. He writes—'Bees in the gardens of the cottage homes of England will be a perennial source of pleasure and comfort to the inmates. Bee-keeping in the future will be an uplifting boon and blessing to hundreds of the homes of the working rural population of this country, sweeping from the brows clouds of sorrow, and from their hearts the pressure of care and poverty. What a satisfaction it is to an honest working man to feel that he is in possession of a power and holds a position to keep the wolf of want from his home.' —R. S. Shearer, *Stirling*.

COTTAGE BRIMSTONE BEE-KEEPERS SELF-PUNISHED.

A Fact.

Thomas. Look here, Mary, here's them nasty 'yaller' bees o' th' parson's going into this hive by scores, and robbing it, no doubt.

Mary. Well, to be sure, and so they are; and it's very queer that the bees belonging to the hive let them go in quietly, and don't offer to fight 'em.

Thomas. No, that quite caps me; but I'll soon stop their game, I'll brimstone the hive and get the honey before they steal it all.

No sooner said than done. The brimstone pot is prepared; the bees, a very strong swarm, all killed. The hive is carried into the house and Mary begins to cut out the combs, and in a very few minutes calls her husband out of the garden.

Mary. Thomas! Thomas! Oh dear! oh dear! well we have made a job of it; why them 'yaller' bees that we thought were t' parson's weren't his at all, but bred in our own hive. Only look what a sight o' brood there is, and the young bees just hatching out are most of 'em fine 'yaller' bees as can be. We must have gotten one of t' parson's queens.

Thomas. Well, I am vexed; and it were t' best and strongest hive we had. I wish I had not been so keen of killing some of t' parson's bees, I do; but what's done can't be undone.

The above hive of brown bees swarmed early in the season. The young queen left in the hive mated with one of the parson's Ligurian drones, and half her produce were so 'yellow,' as not to be distinguishable from pure Ligurians.

BEES AND INJURED FRUIT.

I send you the following that I have observed; if it is worth notice you can insert it among the 'Echoes from the Hives.'

I noticed my bees in August last very busy at work among some pears that have fallen to the ground half eaten by birds decayed partially. As many as six in the hollow part of the pear I have seen, and if another bee makes his appearance those in possession will drive him away, I presume as a stranger. Once or twice I have noticed the Ligurians and Blacks fighting for possession of the cavity. I am afraid the foreigner generally wins. Do they gather food from this source, or is it only the 'thirsty souls' that come here? I do not know (being a beginner in bee-keeping) whether this is a common sight, but I was struck by the busy hum that goes on all day under the pear-tree. They only chose those that had fallen.—L. T. R. *Tachbrooke Vicarage, Leamington.*

[When no honey can be obtained from flowers, &c. the bees will lick up anything that contains saccharine matter in any form, a fact that two years ago brought upon them a charge of destroying the fruit from which they were simply sucking the sweet juices.

Over-ripe pears yield much saccharine matter, some being nearly all as it were, soluble, and the bees take home and store what they collect from them, as if it were honey.

Bees have no means of perforating the skin of fruit, and only when it has been injured by birds, wasps, or other insects, or cracked by the weather, by falling to the ground, or from other causes, can they partake of it. Their quarrelling is perfectly natural, especially when bees of different hives enter a pear (or other fruit) through a small hole in its skin.—Ed.]

EXPERIENCE AT HELMSLEY.

I am induced by the accounts which I see in the *British Bee Journal* to give you a *résumé* of our experience of the bar-frame system in this neighbourhood, which was not very many years ago in the van of the Smotheration school. I first took in the *Journal*, and seeing in that valuable medium a new and humane way of keeping bees, commenced a colony by purchasing four hives in straw skeps, and transferred them into two bar-frame wood hives made out of second-hand 'Martell's Cognac' boxes with an inner casing with an inch of dead-air space. Our frames are 14 in. long by 7½ deep, eight frames to a hive; which, when making ready for swarming, put a hive, mid-ribbed, underneath, as we have found that answer far better than on the top, until we get a good force, and then super them with supers four inches deep and framed in the same way as the body boxes.

This has been a very fair, good year taken as a whole. The heather was a splendid flower at the first, but the weather was dull. The experiment that we have been trying is:—Having learnt that a person was intending to smother some half-dozen hives, I wrote and begged them of him. So we took the train in the morning, arrived at our destination. Drove them—rather a long and tedious job—from hives full of honey at this time of year. Returned home, and then took them seven miles to the moors; divided a double hive; after driving as many of the bees into the lower hive, we put the bees we had got into the upper one, put them on the stand and placed a super on, which, after ten days' work, weighs 4 lbs. 1 oz., but there was a good bit of honey in the hive.

A friend of mine, who was a convert to the bar-frame system at the same time as myself, and who manufactures all the necessary accessories to the art, such as hives, supers, frames, plaster casts for mid-ribs, &c. (ah! mid-ribs, that is the grandest discovery of the age!) has twelve stocks this season; and did not lose one in winter, by careful attention and ventilating with bracken pads stitched together, and made about 2 inches in thickness. He has realised pounds of super honey, and left them twelve very good keepers.

I am pleased to know that smothering bees is a thing of the past in this neighbourhood, because, as soon as any one happens to say that he wants to take some honey he very soon has plenty of applicants for his bees (thanks to your recommendation to keep stocks strong.) There is nothing like keeping them strong, as one good one will get as much honey as ten poor ones.

We find a great difficulty in getting a market for our honey at at 1*s.* per pound in the comb, which we offer it at in convenient sized combs of from 1¾ lbs. to 3½ lbs. each comb. It is splendid heather honey, beautifully sealed.

We used those four queens I sent for breeding in the spring to Ligurianise our whole colonies, as I am persuaded that first-cross both work and breed better than pure breeds of either kind; though, judiciously give blacks plenty of room to increase in numbers they will far exceed anyone's expectations in gathering honey, as I have proved this year. I assure you, that we anxiously wait for the first of each month to see if there is anything new in the *British Bee Journal*, as we are quite desirous to know if it is possible to breed queens and ensure their being impregnated in confinement. Do you think it is possible to accomplish it in a greenhouse or conservatory?

You, perhaps, remember me getting those twelve queens some three years ago, there is not one left pure, at least we think not; it is just possible there may be one which we are doubtful about, but they very soon degenerate. On the other hand, many black queens meet Ligurian drones and produce a cross the other way.

In conclusion, I may just state that I have a black stock, from which I took 28 lbs. of super honey (clover) off before, and 28 lbs. after, it went to the moors; pretty good for a black. But my friend, of whom I have spoken, has a first-cross Ligurian from which he has taken 70 lbs. They are two of the largest gathering of honey that have been in this neighbourhood.—*Hemsley.*

BEE-KEEPING.

To the Editor of the *Times*.

Sir,—From time to time many able and useful letters upon the above subject have appeared in the *Times*. We have been furnished with much useful information as to how bee-keeping may be made a source of profit and the largest possible amount of honey secured at the least possible cost. But they have as yet withheld one most important item of information—viz., how to dispose of our surplus honey and wax when we have got them. I have kept bees at a loss for some three or four years, but this year I have a considerable quantity of honey remaining after sending presents to my friends, and I should be very glad if, by means of it, I could recoup myself a little for my previous expenditure. But all my bee-keeping friends tell me that it is so difficult to dispose

of honey in this way that they have long ceased to make the attempt, and only aim at producing enough for the consumption of themselves and their friends. Now, I should be very glad if your correspondent 'Apiarian,' or any of his fellow-beekeepers, would kindly inform us whether the Bee-keepers' Associations have, as yet, started any *depôt* in London or elsewhere for buying and selling honey and wax (than which they could not do a more useful thing); or, in default of this, tell us what they do to convert their superabundant melliferous stores into cash, and what price per pound they receive for them.—I am, Sir, your obedient servant, A Country Parson.—*Monday, Dec. 2.*

HONEY.

To the Editor of the *Times*.

Sir,—As it may interest your correspondent, 'A Country Parson,' whose letter appeared in the *Times* of the 2nd inst., also other of your apiarian readers, with respect to the facilities for the disposal of honey and honeycomb, perhaps you will kindly allow me space for a few brief lines in reply. As all honey merchants are well aware, there is honey and honey. A first-class sample invariably commands a high figure in the market, while inferior qualities are at all times difficult to dispose of. The best honey of any is that gathered from white clover and hawthorn blossoms early in the season; and when it is thrown out in its pure state from the combs by the honey-extractor, it is of amber transparency and delicious in flavour. Honey of this description is obtained in large quantities, by the advanced apiarian, without the destruction of a single bee or injury to the combs in the process: and, coming early in the market, it finds a ready sale at prices ranging from 1*s.* to 1*s.* 3*d.* per pound. At the close of the past season I disposed of my surplus honey (upwards of 3 cwt.) at 1*s.* 2*d.* per pound, while for honey in the comb I was offered 1*s.* 8*d.* per pound; but as the combs themselves, apart from the honey, are very valuable, I do not care to sell them.

Honey obtained in the primitive 'single straw hive smotheration system' (as is the case to a large extent, even in the present year of grace) is not so saleable; it smacks of the pungent fumes of sulphur, and contains a greater or less admixture of bee-bread or pollen, leaving an unpleasant taste in the palate. It may at once be detected by its high colour.

With reference to the sale of beeswax, the best advice to give bee-keepers is 'Don't.' Pure wax can only be obtained at a great expenditure of time and labour. The game is certainly not worth the candle. The combs of a score of average supers would barely make a pound of the article; while if put by for use in the following season they would treble or quadruple the produce of the apiary. Success in the management of an apiary—so far as a large harvest of honey is concerned—is largely dependent on the quantity of comb available for the supers in spring.—Alfred Rusbridge, *The Apiary, Sidlesham, Chichester, Dec. 4.*

THE *JOURNAL*.

I have received the *Journal* enveloped in pink, which signifies, 'The lease is now out.' Now I have the summary for 1878, which embodied in the form of a book will make an addition to the number already written upon bees, and will be well worth re-reading by myself and others that come after, when places which know us now will know us no more for ever. In the book will be found descriptions of most kinds of bee-furniture that have been brought before the bee-keeping public, with plans, specifications, and quantities already 'worked out.' 'Every crow thinks its offspring the fairest,' the merits of which remain to be proved: there will be found an account of hives fitted with frames longitudinal and transversely, and supers to match, and fitted with hot water pipes laid on. What good-natured subjects the bees must be to do their work in such peculiarly constructed homes, so different from their natural abodes. I am looking forward for brighter days, to know if they will 'pull through' ten degrees of frost, and if so I shall say, as the farmer said of his wheat, it is a very 'hardy plant.'

Two pounds enclosed. Wishing you a happy new year.—David Ling, *Rochford, Dec. 26th, 1868.*

Echoes from the Hives.

Liphook, Hants, 25th Nov., 1878.—'I am quite ready for the "New Combination Hive;" do not paint it as I want to copy the joiner's part of it—several times repeated. My bees are, I think, doing well; they are out every sunny day still, spite of the chill; but I think they only come out for a short fly and back again. If following your direction in the *British Bee Journal* will do it, they should winter well: and I doubt not they will. At the end of October my eight hives had net 30, 25, 33, 32, three of 20, and a 27 lbs. weight of honey and bees in them. The last four were late, October. Rescued sulphurites: and curiously the 27 lbs. one, the last of the four.'—A. J. E.

Tinahely, Co. Wicklow, Ireland, Nov. 26th, 1878.—'I am a cottager here, and have, up to the present, kept my bees in old straw hives. Earl Fitzwilliam is my landlord. No one here takes an interest in managing their bees on your system. I made a slight attempt at doing so last season as follows:—I drove the bees from one hive to another, and, if any remained, I used the sulphur-match and stupefied them. I placed the bees of two hives into one on 14th August last; they worked well together, and I am now feeding them with sugar. I have four stocks (straw), and intend to get supers and stocks, if the price is not too high for a person in my position. I sold three hives of honey, 30 lbs. each, for 8*d.* per pound in comb; and a swarm to a gentleman in Dublin, for 1*l.* It is hard to get a market for honey; besides, it is annoying to have brood in maiden hives. The wife of a clergyman here wondered how I got the honey and kept bees alive, and wondered twice as much when I told her I put two swarms together.'—James Traynor.

Sheffield.—'I am surprised that the gentleman describing the 'Parson's Bee Veil' in the October number of the *B. B. Journal*, whilst he complains of defective sight, does not see the advantage of substituting for the plate-glass a glass magnifying three or four times, of, say, two inches in diameter, setting the same in zinc, with a number of holes pierced in the setting for sewing the veil to.'

Glucose.—There is a scandalous work going on in America, and this country is not free from it either. Manufactured glucose is simply a poisonous compound; yet it is sold in thousands of shops in Britain as Irish and Chilian honey, and by various other names. To put a stop to it we must stir up the analysts and food inspectors. Wishing you a Merry Christmas and a Happy New Year, &c.—S. J., *Dec. 19th*, 1878.

Wokingham.—A Compliment.—'I enclose my yearly subscription of half a guinea to the *British Bee Journal*, and am gratified to find it likely to remain in the same able and competent hands. Wishing you a prosperous and happy new year. I for another am quite pleased with your "Combination" idea: I believe it will prove a

great boon to many. Be it far from me to condemn any change of views or ideas you may adopt, for I am quite sure that our excellent leader would not, for himself or others, adopt any change that would not bear the test, and give in return better results.'—ISAIAH GADD.

THE COMBINATION PRINCIPLE.—'I think the hive problem is now, by your "Combination," reduced to its simplest expression. How we could have borne so long with the old Woodbury, with its nails and pins and propolised frame-ends, is quite wonderful! I intend pulling out all the "distance tacks" from my Woodburys, and shall rely on hand and eye, as I think you do, to keep the frames at proper distances. I have an idea of changing the entrances to the side, and then removing one frame at back, and placing the two next frames further apart. This might induce the bees to lengthen the cells, and use them simply for honey receptacles. This would not prevent my having supers over the rest of the frames, and I might also use one of your slotted diaphragms to separate the two last frames from the others. Would there be any objection to this?'—I. L. S.—[There can be no possible objection.—ED.]

Queries and Replies.

QUERY No. 287.—Will you inform me if it is practicable to drive bees at this time of year to strengthen other stocks?

REPLY TO QUERY No. 287.—If two stocks stand side by side they may be driven and united on any day when the weather permits of bees flying. If the weather be cold they should be taken to a heated room and united by candle-light. In the latter case they should be allowed to thaw into activity, and after being fed with warm syrup and smoked, they will drive readily as a rule. When united take care that the bees can find easy access to the hive into which they are to remain, or they may cluster on its outer side; if they do, prop up the hive on the side to which they cling, and brush them down with a quill. Leave them in the dark to become snug and comfortable, and carry them to their stand before daylight.—ED.

QUERY No. 288.—Last autumn (1877) I smothered all my bees excepting two hives, which are in the common cottagers' skeps with a hole in the top of each about three inches in diameter. In the latter part of April I put on two small super straw skeps (which would contain about 10 lbs. each) with the hope that I should get some honey without killing my bees, but I was greatly disappointed, for within a fortnight of applying them, No. 1 swarmed. I then took off my skeps and put on glass ones (5 lb. ones), but in seven or eight days No. 2 swarmed, and No. 1 sent out a second swarm. But I kept my glass on No. 2, and in about fourteen days after swarming they made a piece of comb about as large as my hand, with very little honey in it; and this is all my bees did for me, to the joy of my neighbours, who say there is no better way than the old-fashioned burning system; but I want to show them different. Now about the swarms. The first one I put in a wooden box, about 15 in. square, and 11 in. deep (inside measure), made of 1¼ in. board, with a hole in the top 4 in. in diameter. I have a window in the back so that I may see how the bees are getting on; the other two swarms are in boxes a little smaller than the above. The first swarm filled up their box very well; I should think they stored about 40 lbs. of honey. The other two did not do so well, only filling up their boxes about three parts with comb: but in September I gave them 12 lbs. of sugar each, dissolved in water and beer, and they now seem to be right for spring. Now, I should like to try the frame-hives, but when I should take off the top or quilt the bees must come out in every direction, which I should think would be very unpleasant, even with a bee dress on. And, again, my bees are in a room or loft (quite dry) with a tiled roof; of course I could take off some tiles and open the windows, but would this be sufficient? I should mention bees have been kept in the above-mentioned place for many years, and have done very well for skeps. For any information you could give me on this subject in next month's *B. B. J.* I should be greatly obliged, as I am determined not to smother my bees to get their honey.—W. J. G.

P.S.—Kindly mention which is the cheapest and most simplest super for my hives as I have them now.

REPLY TO QUERY No. 288.—There were doubtless good reasons for the bees not taking possession of the supers, but not knowing sufficient of the facts of the case we are unable to suggest them. The 'joy' of your neighbours could have little foundation, inasmuch as it appears that the bees did well notwithstanding their having avoided the supers until it became too late to fill them.

A cheap Woodbury hive would be about the right thing for you, considering your bees could barely fill the boxes you gave them; though if you would put two swarms together on the Stewarton principle, they would do better, and larger results would follow. For supers there is nothing to equal the sectional arrangement, which is described in any trade catalogue.—ED.

QUERY No. 289.—I shall thank you to inform me in the January number of the *Bee Journal* whether the *New Bee-keeper's Text Book*, by A. J. King, reviewed by you in this month's *Journal*, is sold in Great Britain, and if it is, where, as I would like to have it?—R. D. BARNES, *Southwick, by Dumfries.*

REPLY TO QUERY No. 289.—We have applied to Messrs. Trübner, of Ludgate Hill, London, American publishers, but they had none in stock. They are, however, willing to obtain them, price 5*s.*—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

BUCKINGHAMSHIRE.—There will be no peril whatever in transferring the bees from the boxes to frame-hives in the spring, but we prefer to do it about twenty-one days after they have swarmed, as explained on leaflet on the subject, free from our office for one stamp. The sectional system is equally applicable to skeps, bar-frame hives, and boxes. Undoubtedly a skep placed at the back of an ordinary hive, would be occupied by the bees as readily as they take to such honey receptacles when placed at the side of a stock hive. How to take an artificial swarm may be found on leaflet, free for stamp; it would be tiring to our readers to repeat the process too often. The indications of the time for taking such are—fine weather, plenty of blossoms, and plenty of bees. The bar you propose is the old Woodbury bar with rib, useful in its day, but now discarded in favour of those fitted with wax-guides, which are much more easily applied. We are always glad to reply to any queries through the *Journal.*

WE respectfully apologise to our readers, and to several esteemed correspondents for the delay that has occurred in the publication of various communications, crowded out from month to month by matter which at the time appeared more urgent. Now, however, we have, by the addition of four pages to our *Journal*, embraced all the subjects on hand, save such as are statistical or simply matter for record; and craving pardon for all our misdoings, and hoping for increased support, we conclude, as we began, by wishing all our friends a Happy New Year.—ED. *B. B. J.*

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 70. Vol. VI.] FEBRUARY, 1879. [Published Monthly.]

Editorial, Notices, &c.

FEBRUARY.

During the temporary thaw which occurred on the 18th ultimo we asked of a labouring garden-help, 'What is the meaning of the huge molehills in the paddock yonder: the moles have almost thrown up mountains?' and the reply was, 'Well, sir, you see they always throws up big heaps when the frost is going.' A day or two after, when the northern giant had reset his seal upon the earth, and the ground had been covered anew with snow, we observed fresh heaps of mole-cast, some of which were large enough to fill a bushel; and, upon renewing the inquiry, we were met with a reply, 'Well, sir, you see they be tender things, and, therefore, they must go deeper into the ground, to get out of the way of the frost, which, maybe, is a foot deep in the soil, and I dare say their food lies deeper than it used to do.'

This kind of reasoning is very prevalent, and will suit the exigencies of any superficial thinker, who, when his knowledge is appealed to and he cannot give the information sought, gravely remarks, 'They always do,' &c., though often, as in the above instance, the reasons given for 'always doing' the same thing are entirely opposed to each other.

Bee-keepers sometimes fall into the belief that bees 'always do' certain things, when the conditions under which they act are apparently alike; but our American sister, Mrs. Tupper, has established the trite aphorism, that 'bees do nothing invariably,' and this is what we wish our readers to bear in mind with regard to them.

The past month of severe cold following on the heels of a December which stands almost unparalleled in memory for its frosty severity, has caused experiences which, it may be hoped, will bear good fruit. Stocks of bees, apparently equal as regards plenteousness of bees and stores, in similar hives, standing side by side, and under, as it is asserted, the same treatment, have acted so diversely, the one by breeding and consuming its stores, and the other by doing nothing and leaving them almost intact, that one is fairly puzzled and unable to account for the phenomena. It is a popular delusion that, during cold, winterly weather, such as has prevailed since the beginning of November last, bees are dormant, lifeless in fact, consuming no stores, but as it were sleeping away the time until warmer weather causes fresh impulses; but experiences prove the contrary, and by the aid of the bar-frame principle, it is clearly established that bees can, and do, breed during the most inclement weather, giving undisputable evidence of continued activity and positive vigour. A bee-keeper, having one stock only, and finding it in the condition described, might raise a theory on the balance of forces, showing that the consumption of food for heat-producing, and the consequent waste of tissue and loss of bee-life ensuing thereupon, would be compensated by the production of young bees as a necessary consequence, seeing that the partaking of food by the bees generally stimulates them and induces them to communicate their excitement to their queen-mother, who in turn, exercising her egg-laying propensity, induces the production of brood.

We will not further pursue this vein of thought, since having shown that communities of bees are subject to individual instincts and amenable to no general rule, we hope we shall have impressed our readers with the necessity for constant and careful supervision of their stocks individually. The condition of one stock of bees is no guide whatever to the general state of a number any more than the good or ill health of one person is a criterion of the hygienic condition of a whole village.

The present winter has hitherto been a trying one, and the presence of 'white bees' on alighting boards invests it with a peculiar interest, inasmuch as it has proved that in well-constructed hives the bees may continue their natural habits and economy with impunity, so far as regards their healthiness, whereas,

in ill-arranged hives, enlarged consumption of food for heat-producing purposes often induces dysentery and ruin to the community. It would appear that in a healthy stock of bees, *i.e.*, a stock in a properly-constructed hive well supplied, breeding may go on for many days, involving great labour on the part of the nurse-bees in preparing bee-pap in their stomachs for the larvæ without the necessity for what is called a cleansing flight in the meantime.

That the breeding should be kept up until the stores become exhausted, which the presence of 'skeleton white bees' on the alighting-board indicates, as a rule, is not a fault in the hive, but points rather to want of proper care on the part of the bee-keeper, who should by judicious feeding in the previous autumn have rendered such an event impossible. Many bees have this season been lost through there being no winter passages in the combs, and through their thus being cut off from supplies which they dare not venture round the ends of the combs to obtain, and it is possible that the white bees on alighting-boards may be cast forth from this cause while there is plenty of food in the hive which the bees cannot reach. Anyhow, the white bees at the entrance prove that something is wrong in the commissariat, and that the hive needs immediate attention. When it is discovered that bees are suffering through want of winter passages, some means should be adopted to remedy the evil. A cork-hole should be bored in the side of the hive, parallel with the combs, and a tin tube with its end cut as a quill is cut when making a pen, leaving two V-shaped projections, should be very gently forced through the combs, turning it as it moves, to cause the points to cut their way, until the bees were reached, when the tubes should be withdrawn, and the hole in the hive filled with a cork, as prescribed.

WORK FOR THE MONTH.

When the frost breaks for good, if for good the weather can ever be relied on, a grand overhauling of stocks will be necessary, and we beg to tender our sympathy, in advance, to those who have not acted up to the dictates of the *Bee Journal*. Our fifty-two stocks are all right, not one having succumbed; and only in about three instances has there been a more than very ordinary death-rate, and in those cases it could be readily accounted for.

During very cold weather, the honey-combs of a hive are cold also, and often when the cluster of bees moves sideways to the stores, there may be a difficulty in puncturing the cells, and the bees may be in a starving condition, through being unable, as it were, to open their preserves. A tin of preserved meat or milk is of value in a house, but to a starving family, with no means of opening it, it would be but a tantalizing mockery.

The obvious remedy in regard to bees is to open occasionally some cells as near to them as possible or to place a little barley-sugar within their easy reach.

It is usual to recommend that, towards the end of the month, our system of stimulative-feeding should be commenced, with a view to the production of a batch of brood at an earlier stage than they would naturally be brought forth; but while the terribly frosty weather continues, having regard to the directions in the foregoing paragraph, the less the bees are interfered with the better it will be for them.

Quilts.—In such crucial weather attention should be paid to quilts, and their coverings. It will be evident that the heat generated in a hive will be insufficient to repel the frost, such as has prevailed for so many weeks, from the upper, or super chamber of a hive, the more particularly as the ventilating holes permit the cold air to pass through it. As a consequence of this, the vapours arising from the bees into the upper chamber may condense on the woodwork of which it is formed, or fall in the form of dew on to the quilt itself, and, by absorption, render it damp and colder than it is desirable it should be, though such dampness, being outside the body of the bees, is infinitely preferable to its being within, since it can be dealt with without disturbance of any kind to the bees. When this condition of things exists, the upper thicknesses of the quilt should be removed, and fresh, dry material substituted, and the removed portions, after being thoroughly dried, can then replace the upper parts of any others that need removal. On no account should the ventilating holes in the upper chamber be closed.

Artificial Pollen.—This is supposed to be offered to bees about the end of February, but it is better to take the blooming of early spring flowers as the guide. It may be given in any way that will give the bees standing room while they lick it up with their moist tongues and wipe it on to their legs. We have generally used old skeps, filled with deal shavings, and set into warm corners, the artificial pollen being simply distributed upon the shavings; and we have seen, literally, hundreds of bees busy in one such hive at work upon the shavings.

The artificial pollen which we prefer is pea-flour, such as is sold by grocers and provision merchants for the manufacture of pea-soup; it is sold in packets at 1*d.* and 2*d.* each. Offering artificial pollen to bees when natural pollen is obtainable will be like 'carrying coals to Newcastle,' it will not be appreciated.

Do not forget to provide all necessaries for

the apiary beforehand, so as to be ready when swarming and supering time arrive. Neglect of this precaution often causes much vexation.

UNITING.

Uniting, in bee-culture, signifies the happy union of the bees of different families; it implies the joining together of swarms to form a huge swarm, on the Stewarton plan, whereby, great honey results are generally achieved in their first year; in antagonism with the common custom of placing each swarm in a separate hive, with the probability that through sparseness of numbers they will individually barely provide for themselves against the winter and will then require 'uniting.' From this it will appear that it is often necessary to unite *stocks* of bees to each other, an operation which may be as necessary in spring, as in autumn, since, through '*bad luck*' in wintering, (which too often means bad management) dwindling may here take place to an extent that would render separate existence for profit in the ensuing summer a comparative absurdity. It being acknowledged that certain stocks may possibly be weak in the spring, it may sometimes be deemed advisable in order to strengthen them, to add swarms from stronger stocks to them, and this operation is also called 'uniting.' Further, it is often necessary to remove the reigning queen of a hive and to substitute another, a process usually called 'introducing a queen,' but which may fairly be considered under the term implied in the heading of this article. Thus we have to consider the best means of uniting—1st, swarms to each other,—2nd, stocks to each other,—3rd, swarms to stocks,—and 4th, the introduction of queens to stocks, which by the by may have become queenless as well through accident as design.

In uniting swarms to each other, if they be normal swarms, *i. e.* such as come off naturally through increase of population at a season when honey abounds, little precaution is necessary, as, being already gorged with honey, which instinct teaches the bees to take with them as a first means of commencing the building of comb, they will be too heavy and lazy to attempt a great demonstration.

If two such swarms issue on the same day, they should each be hived separately until the evening, in any old skep or box. One swarm should then be placed on the ground, near the stand it is to occupy, a stick of about an inch diameter being laid under it to keep it up in the front,* and the other should be shaken out of its hive in front of it, when the former will crawl in and swell the numbers of the first, and, uniting with it, a huge swarm will as a rule be formed.*

The swarms thus united should, as soon as they have gathered into one cluster, be set on the stand they are to occupy in general permanence; it is better to do this on the evening of swarming if possible, though early next morning will do, care being taken not to shake them and cause them to fall from the hive. A shake and fall in the evening would only necessitate the replacement of the hive, but a morning performance when the bees would have become somewhat lighter, might cause a general flight† and their consequent loss.

When joining two swarms, if the bees amalgamated, and the queens are at large one of the latter will as a rule be killed in a few hours, but should it happen that the queen of either swarm is considered of greater value than the other, and it is thought desirable to preserve her preferentially, both the queens should be captured when hiving them in the first instance and caged in their respective hives, and at night the bees should be united as before directed in the hive containing the desirable queen, the other being kept out of the *mêlée*. The valued queen should be set free next morning.

It frequently happens that swarms destined by their owner to be united, do not come off on the same day, nor, perhaps within a week of

* The reason why it is better to use a stick than a stone is, that very often in the latter case the bees climb over the stone, and up the front of the hive, outside, and give trouble, whereas if the hive is supported by a stick lying under it, the front will present a wide mouth-like entrance, and the chief body of bees will have marched in before finding means of ascent to the hive.

* It does not always follow that swarms thus *put together* will 'unite' on the instant, as, if the hive be sufficiently capacious they will sometimes separate, and, forming individual clusters, will work and act independently through one entrance until by their increase they touch each other, and then there is soon a stormy question of boundaries and nationalities: and if one of the queens does not evacuate her provinces, with a retinue larger or smaller as the case may be, mortal combat will settle the question of so-called sovereignty, and ONE will immediately become supreme in a quickly consolidated empire.

On first joining the swarms, if there should be any evidence of disagreement a puff of smoke will generally prevent war by frightening the whole mass, and if all the bees be then shaken together on to the ground a peaceful union will be assured.

† The '*flight*' of normal first swarms seldom occurs until after a settling, and comfortable ascertainment of fitness for colonisation; indeed inasmuch as such swarms cluster in the first instance to invite their queen to join them it may be concluded that they never on leaving the hive fly clean away.

Instances have been recorded to the contrary, but we doubt the genuineness of the observations leading to such conclusions. Swarms headed by young virgin queens are guided and governed by the whims or exigencies of their leader and are subject to no rule.—ED.

each other, in which case more care will be required to ensure that their 'marriage' shall be a peaceful one. One swarm having a few days' start of the other, it may be fairly assumed that in the first comb-building will have commenced, and the comb being very tender it will be almost impossible to disturb the bees with impunity, for a very little jar or shake would cause the whole to fall, and the work accomplished would be destroyed.

In uniting a swarm to a previous one under the conditions above stated, the hive containing the first should at evening, when all the bees are within, be carefully lifted from its stand and placed on the ground as directed in the foregoing, when a few puffs of smoke should be blown into the hive to cause the bees to fill themselves with honey. While this is going on, the operator should fetch the newly hived swarm (No. 2) and set it in front of the other, and having given it a puff of the same kind of smoke the hive should be jarred on to the ground so that all the bees may be cast in front of the occupied hive whose bees, reeking with smoke, and filled with honey, will not resist the entry of the new comers into their own dwelling. The hive now having a vastly increased population will be quickly be filled with combs provided the bees can obtain the food necessary to enable them to form them.

When stocks require uniting it must be distinctly understood that *only those can be successfully joined that stand near each other;* and if it be not convenient to do so, those that are to be united must gradually be brought together by very short stages day by day on such days as they can fly, and are working, so that they may not suddenly find their hive removed away from the position in which they found it on their return on a previous occasion.*

This question of gradual approximation is apparently the root of the puzzle which gives amateurs so much trouble in solution, but if they would put on their 'considering cap' and allow bees to possess the attributes which are recognised as instinct in animals, the difficulty would at once disappear. Instead of a bee-hive, let the subject of investigation be a stable, cowshed, pigeon-loft, or poultry-house, domiciles to and from which the animals respectively make daily excursions and visits, becoming in fact well acquainted with their *entrances*. Now if by any freak these respective buildings were caused to change their positions, a very little common sense would point out that if left to themselves the poor animals would get so mixed up that in the cowshed we might expect pigeon's milk, and in the chicken-house a mare's nest.

Colonies of bees are individual, as are human families, each member knows its home and hither bends its way; and it is easy to imagine, as humans, the consternation that would ensure if the abodes of men were made the sport of a superior power, and misplaced and displaced as are sometimes the homes of the poor bees,

> 'Creatures that by a rule in Nature,
> Teach the art of order.'

Supposing an apiary to consist of six stocks a yard from each other, viz. A, B, C, D, E, F, and that any two of them—say, A and E were found in the spring or autumn to be too weak to stand for profit, yet that all the others being excellent and headed with valuable queens, it was thought better to unite the two weak ones, rather than risk the loss of the queen of either neighbouring stock, the question is, What is the best mode of procedure? We would advance or retire A and E, as might be most convenient, by very short stages daily, until well clear of the line in which they stood, and then gradually bring them together before uniting, or, if time were valuable would take them to an apiary a mile or more away and unite them at once. Another plan would answer, viz., exchange one of the weak lots, say A, for another from a distant bee-keeper, and when the latter is brought home set it close to D, and afterwards unite at leisure.

In uniting the bees of two stocks, a process as frequently necessary in spring as in autumn, it is best to drive or shake the bees from both into separate vessels, and having sprinkled them with thin scented syrup,* pour them together as if they were peas, and by a sifting motion thoroughly mix them. In this condition with nothing to defend they will amalgamate peaceably, and when in a subdued state their combs, first thoroughly sprinkled with the syrup, may be restored to them. With the old skep, brood will often be lost in effecting the union of bees of different hives, but with hives on the moveable comb principle the combs containing brood can be put together to form one nest, and all the brood (more valuable than honey in both spring and autumn) will be saved; a strong argument in favour of mobility of combs.

When it is desirable to strengthen a stock by adding to it the bees of a swarm or cast, the latter should be hived and carried to the front

* If a hive entrance be moved only a few inches to the right or left, the bees on leaving it will not be aware of the alteration, but on their return flight they will alight at the spot where the entrance was, and will be considerably confused until they get used to the new position. How much more must they be confused if the hive is moved bodily several feet without their having had opportunities of gradually recognising the alteration. —Ed.

* Thick syrup should never be used in uniting, as it may cause the bees to roll into a ball from which they cannot extricate themselves.—Ed.

of the stock to which they are to be united, where temporarily its hive may be set upon the ground. Towards evening the bees of the stock should be driven or shaken out of their combs, and the combs sprinkled with scented syrup and kept warm artificially for the time being. The swarm and the driven bees should then be sprinkled with the scented syrup, and shaken together in one hive, which should be placed upon the stand of the stock, a stick being laid across the floor-board to ensure easy access, and plenty of air to the bees.

When comfortably amalgamated, the hive should be suddenly jarred to throw all the bees on to the floor-boards, and while there the hive containing the combs should be set over them, resting on the stick already across the table, so that they may readily run in and not be liable to be crushed or otherwise injured. At night when all are inside, the stock may be removed, and the hive covered up in the ordinary way.

It is sometimes thought desirable to strengthen weak stocks by giving them bees from a stronger one, that is often done by exchanging their respective positions, an operation which endangers the life of both the queens. A better plan is, to drive out the bees and queens from both hives and exchange their relative positions, so that the weak lot of bees may have the strong lot of brood which will add to their numbers from one to two thousand daily, while the strong lot of bees will have plenty of room in the weak one's hive, and will soon fill it up and render it prosperous.

(To be continued.)

BRITISH BEE-KEEPERS' ASSOCIATION.

The following has been sent to every member of the British Bee-keepers' Association, and we cordially commend it to their attention as of the highest importance to the interests of bee-culture in this country :—

DEAR SIR,—I beg to forward you (1) a copy of the Balance Sheet of the Association for the year 1878.

(2) A voting paper for the election of the committee for 1879, to be filled up and returned to myself on or before Saturday, January 25th. The results of the election will be declared at the Annual General Meeting, which will be held at three o'clock p.m., on Wednesday, February 12th, at the board-room of the offices of the National Chamber of Trade, 446 Strand (opposite the Charing Cross Station), and which you are hereby specially requested to attend. The following subjects will be considered at this meeting, viz.,—

(1.) The promotion of County Bee-keepers' Associations on the model of those already existing in the counties of Lincoln, Devon, Dorset, Salop, and Herts, in connection with the British Bee-keepers' Association. To be introduced by the Honorary Secretary of the British Bee-keepers' Association.

(2.) The admission of representatives from such county associations to quarterly meetings of the Committee of the British Bee-keepers' Association, with the view to promoting united action between the County Associations themselves, as well as co-operation with the Central Association. To be introduced by Mr. R. R. Godfrey, of Grantham.

(3) The establishment of a Honey Market in London, nder the management of the British Bee-keepers' Association. To be introduced by Mr. J. P. Jackson, of 18 Great Tower Street, London.

(4.) The arrangement of quarterly meetings or soirees at which papers may be read on subjects connected with bee-keeping, by the members of the Association, and discussions held thereon. Such proceedings to be printed and circulated amongst the members. To be introduced by Mr. C. N. Abbott, of Fairlawn, Southall.

HERBERT R. PEEL, *Hon. Secretary.*

Abbot's Hill, Hemel Hampstead, Jan. 13th, 1879.

[We are pleased to be enabled to state that our esteemed President, the Baroness Burdett Coutts, is taking an intelligent interest in the results of the election of the Committee for the year 1879, and has appointed Mr. Harris, manager of the Columbia Market, as scrutineer of the voting papers issued for the election—an appointment which all will cordially approve.

January 28th.—The following are the names of the gentlemen elected to serve on the committee for the coming year :—C. N. Abbott, Rev. E. Bartrum, F. Cheshire, T. W. Cowan, R. R. Godfrey, J. M. Hooker, J. Hunter, J. P. Jackson, and Rev. G. Raynor.

Number of voters who recorded their votes	76
Number of those entitled to vote who did not record their votes	79
Number of those who forwarded their votes too late to be recorded	3
	158

Two members have paid their subscriptions since December.]

FIFTH ANNUAL BALANCE SHEET.

Statement of Receipts and Expenditure for the year ending 31st December, 1878.

RECEIPTS.

Balance brought forward from last Statement :			
On account of Tent Fund ...	£7 19 0		
On General Account ...	4 9 11		
		£12	8 11
Subscriptions to Prize Fund		51	6 0
Exhibitors' entry fees		9	2 9
Commission on sale of exhibits		3	11 7
Admission to manipulations at the South Kensington Show		23	5 2
Sale of Catalogues		5	12 9
Advertisements in Catalogues		2	12 6
Receipts from letting of Tent, and subscriptions to Tent Fund		11	14 6½
Sales of exhibits received		18	3 10
Donations to General Fund...		32	7 0
Members' Subscriptions		76	2 4
Stock in hand		36	1 0
		£282	8 4½

EXPENDITURE.

Cash paid for prizes		£39	17 6
Printing		23	0 8
Advertising		13	9 9
Labour and general expenses of Show ...		15	5 5½
Bees for Manipulations		7	2 6
Exhibitors for sales of exhibits		18	3 10
Rent of rooms for Committee and General Meetings		5	9 6
Carried forward		122	9 2½

Brought forward ...	£122	9	2½
Messrs. Taylor for medals	25	15	0
Bee Tent and fittings	24	2	2
Postage, Stationery, &c.	6	12	5½
Sundries	4	1	11
	£183	0	9

Balance.—Cash in hand on General Account ...	£63	6	7½		
Do. Stock, Exhibition Tent	20	0	0		
Do. „ 13 silver medals	9	15	0		
Do. „ 18 bronze do. ...	6	6	0		
				99	7 7½
				£282	8 4½

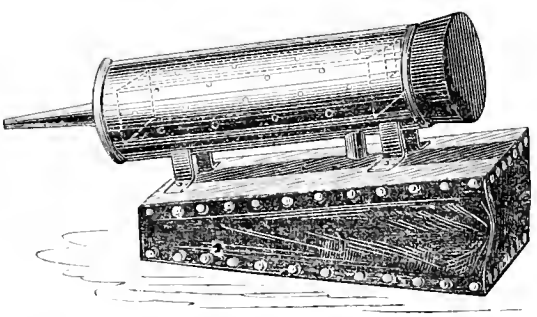
Herbert R. Peel, *Hon. Secretary.*
W. O'B. Glennie, *Treasurer.*
Audited, and found correct,
W. A. Kirchner, *Auditor*

The agenda show four subjects for consideration and discussion, the first of which we have always considered of great importance, and have done all that we could, both through our *Journal* and by direct personal help, to bring about the desirable result. The second subject is to our mind of direct importance, as affording a means of affinity between all the Associations, linking them together and stimulating them to united action. A fraternal feeling will doubtless spring out of an arrangement such as this that will prevent the clashing of exhibitions; no mean object, which will enable the Association's Tent and their expert to be far more largely used, to the profit of Associations, and the public generally. The third proposition is one which has had considerable attention, and demands the united action of the members of the Association. The cry that there is no market for English honey is an absurd one; the fact is, that in no place in England has there been sufficient produced to form a market, or fill a store; but the tons brought from America have found a way into the shops of grocers and provision merchants; and although it is dear and nasty, it passes with the public because it is in pretty marketable shape. Surely an effort shall be made to compete with the adulterant foreigner? At our shows huge consignments of honey are usually present; and if such were branded by the Association and guaranteed pure English, the public would buy it in preference to any other. Best English honey is the best in the world, and the British Bee-keepers' trade-mark on the packages, would soon oust the Yankee with his fifty-seven per cent of glucose.

The fourth proposition we shall have the honour of bringing forward, and that not for the first time. At a very early period in the history of the Association there will be found a resolution, that such matters as are therein suggested should be carried out, but former secretaries could never find the opportunities. Now we have a secretary who will make them, and we therefore ask that our readers who are members, will come and support the proposition, and invite those who are not, to join us at once and give their help to the furtherance of so good an object.

ABBOTT'S NEW QUIETER AND FUMIGATOR.

This is a simple and neat Quieter. It consists of a tin tube, with nozzle, mounted on a spring bellows, connected as shown. It has a separate fire-box, into which the fuel is placed, and when ignited it does not puff smoke in all directions, into the eyes and nostrils of the operator, but straight through the nozzle only. It is suitable for quieting or fumigating, as almost anything may be burned

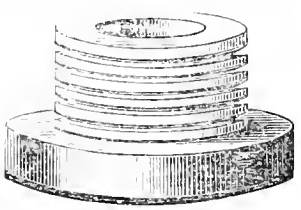


in it, to wit—brown paper, touchwood, rags, tobacco, and puff-ball, and it is easily worked with one hand. When not in use, the removal of the plug will allow the fuel to consume slowly. There is no intricacy in its manufacture, and any amateur tinsmith can easily repair or remake it.

Note.—As the fuel is in a separate fire-box, and the cold air is so rapidly forced through it, the tube does not become overheated while in use. It should be remembered that articles of this kind are not intended for the production of *fire*, but only for smoke, and therefore such fuel should be used as will smoulder rather than create flame.

ABBOTT'S BOTTLE PLUG.

This, when bound with hemp, may be made to fit any ordinary pickle-bottle, and having a base of near three inches will enable it to stand



alone, while its shoulder effectually prevents the food being taken by robbers from the outside. The hole in quilt or hive crown should

first be covered by a piece of perforated zinc or wire-work to keep the bees within, and the bottle may then be inverted and placed upon it with perfect safety. The under side of the plug is covered with vulcanite, which may be perforated at the will of the bee-keeper; but it is sent out with three small holes in it, either of which may be temporarily stopped with a slight touch of warm wax.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

This Association was instituted May, 1878, for the encouragement, improvement, and advancement of bee-culture, particularly as a means of bettering the condition of Cottagers and of the labouring classes generally, as well as for the advocacy of humanity to that most industrious of labourers—the Honey Bee.

PRESIDENT:—The Earl of Verulam.

VICE-PRESIDENTS:—The Marquis of Hamilton, M.P.; the Earl Brownlow; the Earl of Clarendon; the Earl of Essex; the Rt. Rev. the Bishop of St. Albans; the Lord Ebury; the Lord Chesham; Hon. Baron Dimsdale; Hon. H. Cowper, M.P.; Abel Smith, Esq., M.P.; Thomas F. Halsey, Esq. M.P.

PROVISIONAL COMMITTEE:—Rev. E. Bartrum, Gt. Berkhamsted; R. A. Brooke, Esq., Northchurch, Gt. Berkhamsted; Rev. F. Burnside, Hertingfordbury; Mr. W. H. Cranstone, Hemel Hempsted; H. Finch, Esq., Red Heath, Rickmansworth; Rev. E. H. Gifford, D.D., Much Hadham, Ware; Rev. J. Griffith, Sandridge, St. Albans; Rev. J. Hargrove, Harpenden; Rev. R. W. Hodgson, King's Langley; J. P. Jackson, Esq., Bulls Mill Apiary, Hertford; Rev. C. F. G. Jenyns, Knebworth, Stevenage; Rev. T. R. Kewley, Baldock; Mr. J. E. Littleboy, Hunton Bridge, Watford; P. H. Phillips, Esq., Offley Lodge, Hitchin; Mr. A. Rumball, St. Albans; Col. E. Smyth, The Grange, Welwyn; J. Titchmarsh, Esq., Royston; G. Turnbull, Esq., Rose Hill, Abbot's Langley; Rev. F. Wilcox, Frithsden, Gt. Berkhamsted; Rev. R. M. Wood, Aldbury, Tring.

TREASURER:—Charles Wotton, Esq., M.D., King's Langley.

HONORARY SECRETARY:—Rev. Herbert R. Peel, Abbot's Hill, Hemel Hempsted.

ASSISTANT SECRETARIES:—Mr. E. Gulston, King's Langley; Mr. J. Huckle, King's Langley.

The object which the promoters of this Association have in view is to encourage amongst the residents in Hertfordshire, and especially amongst the Cottagers and agricultural labourers, a more intelligent, humane, and profitable system of bee-keeping. The Herts Association is a branch of the British Bee-Keepers' Association, which was established in 1874, and which holds annually a great Metropolitan Show of bees, hives, and honey. The Show for the year 1878 was held in the gardens of the Royal Horticultural Society, under the presidency of the Baroness Burdett-Coutts, on August 6th, 7th, and 8th.

On the Continent of Europe bee-clubs are very numerous, and in the German Empire they meet with especial encouragement from the Government. There, the State provides instruction in apiculture, and school-teachers in the rural districts have to pass an examination in that branch of rural economy before receiving their certificates, so greatly is bee-culture valued as a profitable and elevating employment for the labouring agriculturists.

The Herts Association, though anxious to encourage the adoption of the moveable comb system, as giving the bee-master greater control over his bees, and greater facilities for examining them, does not propose to recommend hives of any particular pattern, or to decide between the merits of the leading hive manufacturers. It would rather aim at the introduction into general use of supers made of wood or straw, as well as of the Extractor or Honey Slinger, as entirely superseding the old system of stifling bees with sulphur, and destroying the comb in order to obtain the honey. The finest white comb filled with virgin honey can be obtained in supers in the months of July and August without that intermixture of blackened brood and crushed pollen, which is inseparable from the old method of 'taking up' a hive; whilst pure run honey can be obtained at any time during the season by means of the Extractor, and the combs returned to the bees to be refilled without their being broken or injured. The preservation of the comb lessens very materially the labours of the bees, and enables them to devote the precious days of summer exclusively to the storing of honey instead of consuming it in the preparatory toil of building fresh receptacles for their stores. Where new comb has to be built, the prepared wax-sheets, obtainable from any of the leading hive manufacturers, will be found of great service. The improvement in the quality of the honey thus obtained may be regarded as a matter of great importance. The Cottagers' honey from the straw skep is, from the manner in which it is taken, often almost unsaleable, and is driven out of the market by foreign honey.

The Association hopes to bring under public notice any improvements or advances which may from time to time be made in the art of bee-keeping. It also aims at diffusing a knowledge of the more elementary principles, by the attendance of its Bee-tent, during the summer months, at the Shows of Horticultural and Cottage Garden Societies. In this tent, specially constructed for the protection of spectators, simple lectures on the nature and habits of bees will be given, whilst the processes connected with bee-keeping will be practically demonstrated. During the winter months it is proposed to give lectures, followed by public discussion on bees and bee-keeping, whenever an opportunity offers itself, and to promote the circulation of the *Bee Journal* and other similar publications amongst the members of the Association.

During the summer of 1878, the promoters of the Association have given displays of driving, transferring, extracting honey, uniting stocks, &c., at the flower shows held at Latimer, in the grounds of Lord Chesham, at Moor Bark, the seat of Lord Ebury: at the *fête* of the Great Berkhamsted and Northchurch Cottage Garden Society, as well as in the grounds of J. B. Lawes, Esq., at Rothampsted Park, near Harpenden. They were also enabled, through the subscriptions of those who have already joined the Association, to offer prizes for the best supers of honey in wood, glass, or straw, at the Hemel Hempsted Cottage Garden Show, as well as at Great Berkhamsted. A public meeting was also held in the Town Hall, Hemel Hempsted, on Monday, July 29th, which was well attended by the labourers of the district, and during which several gentlemen gave excellent advice with regard to bee-management to a most attentive audience. A genuine interest in bee-keeping has thus been excited in the western division of the county; and from the encouragement they have received, the promoters of the undertaking feel justified in endeavouring to form an Association which shall embrace the whole of Hertfordshire.

The Association will be prepared at an early date in 1879 to make arrangements, through their Secretary, with the managers of Flower Shows and Cottage Garden Societies for the attendance of the Bee-tent, and displays of manipulations, without subjecting them to any expense whatever. The Association will simply require to be allowed to charge a small entrance-fee to each visitor to the tent. The formation of Cottagers' Clubs in each parish will also receive every encouragement from the Association.

It may be asked what advantages the Association propose to confer upon its members. The reply can hardly be given until the rules and regulations for the government of the Association are decided upon; but the following may be held forth as inducements to join its ranks:—

1. The privileges of competing at all Shows held by the Association at a lower scale of entry-fees than will be required from non-members. 2. Admission to the Bee-tent on the production of the members' ticket, which will admit the subscriber alone, and will not be transferable. 3. The use of the *Bee Journal* and other pamphlets circulated by the Association, which should be distributed amongst members only. 4. The chance of winning a hive of the most approved pattern at the drawing, which it is proposed to hold at the Annual General Meeting. 5. The opportunity of disposing of their surplus honey at the Annual Honey Fair, which will be held by the Association in some central town of Hertfordshire, and which will be open to none but members.

It must, however, be remembered that the Association is a purely philanthropic one, every office in its management being filled gratuitously, and that the main advantage to be gained from membership is that the member will probably learn for himself something about bee-keeping, and will help to instruct others who possibly know nothing at all about it.

The Provisional Committee will be glad to add to the list of those who have already joined the Association, and will, on application, enclose a form to be filled up for that purpose. Subscriptions must be considered due on January 1st in each year, and as being in arrear if unpaid on May 1st.

As a proof that the bee-keepers' employment is not unremunerative, and as an incentive to the Cottagers of Herts in maintaining their ground against foreign competitors we subjoin the following extract from the *West Sussex Gazette* of November 14th, 1878:—

'There seems to be no limit to the provisions with which America is prepared to supply us. We read that on the 5th inst. eighty tons of honey, stored by American bees into half a million neat little glass-sided boxes, arrived at Liverpool by the steamship *City of Berlin*. This honey, it is stated, is the partial product of 12,000 swarms of bees, in which a large mercantile firm is interested, and which are distributed throughout the honey-producing sections of the United States in apiaries of 100 swarms each. The bees are valued at about 2*l*. per stock, or swarm: and, taking the low estimate of 50 lbs. of surplus honey per swarm, the gross production of honey for the market from these bees amounts to about 600,000 lbs. Honey has increased and money has decreased in value since the middle of the sixteenth century, when, according to Tusser ('Five Hundred Points of Husbandry'), a swarm of bees was worth a crown. This first experiment of bringing honey in the comb on a large scale to Europe from America having proved successful, it will no doubt be repeated.'

Proposed Rules and Regulations.

1. That this Association be called the Hertfordshire Bee-keepers' Association.

2. That its objects shall be the encouragement, improvement, and advancement of bee-culture, particularly as a means of bettering the condition of cottagers, agricultural, and other labouring classes, as well as the advocacy of humanity to that most industrious of labourers—the honey bee.

3. That the officers shall consist of a president, vice-presidents, committee, secretary, and treasurer, the whole of whom shall hold office for one year and be eligible for re-election.

4. That the management of the Association shall be vested in the Acting Committee, of which the secretary and treasurer shall be ex-officio members.

5. The minimum subscription of members shall be 2*s*. 6*d*., payable on the first day of January in each year, and shall be considered in arrear if not paid by the 1st of May following. Subscribers of 10*s*. 6*d*. and upwards to be alone eligible to serve on the Committee.

6. The Committee shall hold exhibitions of bees, hives, and honey, at the times and places they may deem most suitable to the interest of the Association and its objects, and adopt such measures as they believe will most conduce to extend and improve a knowledge of bee-keeping as far as the funds of the Association will permit, by means of lectures, meetings, the circulation of suitable books, and of the most profitable use and disposal of bee produce, provided always they shall in no case contravene a rule made in general meeting.

7. That an ordinary general meeting shall be holden once in each year, when the officers for the ensuing year shall be elected, and questions of government of the Association be discussed and resolved upon. An Extraordinary General Meeting may be called by the Acting Committee at any time, and shall be called by the Secretary within fourteen days, upon receipt of a requisition signed by any seven members of the general committee, stating the nature of the business for which the General Meeting is to be called.

8. The Committee shall purchase annually one or more hives of the most approved patterns, to be drawn for by the members of the Association; such drawing to take place at the Annual Meeting.

N.B.—The member who is successful shall not participate in any future drawing until every member of the Association has received a hive.

AMERICAN OPINION OF AMERICAN HONEY.

A LOT OF THE FINEST COMB HONEY IN NEW YORK, COMPOSED ENTIRELY OF FLAVOURED GLUCOSE.

By J. Hasbrouck, *American Bee-keepers' Magazine.*

Shortly after the meeting of the National Convention, in which the subject of adulterated honey was pretty severely handled, I heard, through Mr. Peet, of Williamsburg, that he had found some honey in a grocery, near him, which, when tested with alcohol, had a suspicious appearance, and was not liked by families that had been in the habit of buying honey largely of him while he had it for sale. I procured some of the honey at twenty-five cents per pound. It was very white, put up in the neatest possible box, and was altogether the finest-looking honey I have seen this season. After reaching home I tasted it and concluded that there must be some mistake about it, for, although it had a strange taste, it had a nice flavour of pennyroyal and was so unlike glucose that I thought it must be honey, and I didn't take the trouble to apply any tests. A few days after I had some of it put upon the tea table with some clover honey, and I noticed that although all the family tried it in preference to the clover, they asked for the clover the second time, and all agreed that they didn't like that honey. I next analyzed it thoroughly and found that it was simply glucose diluted with water and flavoured.

I next took it to New York and exhibited it to various parties—veterans in the honey trade, and they almost invariably pronounced it 'splendid honey,' until they saw it tested, and behaving under various tests the same as XX Glucose. If I had seen at that time the lively article in the last magazine on 'The Coming War,' I should have hunted up the author to see if he could 'tell it from honey that is sound, pure, virgin, by the taste or its appearance.' Probably he could have done so, as he may have had more experience in that kind than those whom I met. I noticed he tries slyly to poke some fun at that 'august body, the National Convention,' and evidently feels complaisant because he and 'two or three others'

are not members. Yes, I have heard of 'two others,' at least, who boast that they are 'outside' that convention, but they are like himself, they are conspicuous advocates of glucose—*for stimulating only*, of course.

I wish I knew the name of just one other—who is 'outside' the convention, I am sure—some of whose choicest productions I have, and who I have no doubt shares with our friend, the author, a very curious opinion of the shrewdness of the members of the convention; because they spend their time in wrangling about the best honey plants, or bemoaning unfavourable seasons, when, if they were sharp like him, they would go on and make their honey like he does. The *inside* of that convention would be an uncongenial place for him, I can imagine, if he were known.

Honey made in this way will, from its fine appearance, 'sell itself' for a while, 'without the endorsement of the minister of the parish;' but even such an endorsement would not stop people who understand the cheat, from believing that he is as great a knave as is 'outside' a State Prison.

People who are cheated in his way a couple of times will not buy honey any longer, and soon, if this fraud is to continue, honey will be a duller commodity than ever upon the market. I know of a few men, inside that convention who, if they were sufficiently dishonest, could make more of this glucose honey next season than could be sold during this generation even at 'half price.'

Bee-keepers are not afraid that glucose, when it is known, will ever compete with honey as tallow butter may with real butter. At 'half price,' and 'with commission men advocating its merits,' and skilfully concealing the fact that it is worth only one third as much, it may be a rival of molasses, but of honey never, if the customer knows what he is buying. Honey is a luxury, and when one is able and feels like indulging in it, he wants the genuine article, and will not cheat himself with a counterfeit, concocted of refuse and doctored with chemicals, if he knows it.

All that is necessary to stop this nefarious business is a law compelling every one who offers glucose for sale in any form, or mixed with anything, to put a label on it telling just what it is. Label the most inviting packages of honey-comb 'Glucose,' and you could not sell one hundred pounds a-year in New York City. You could not get rid of it any sooner than you could of greenbacks stamped 'counterfeit.'

I have no objections to feeding glucose to bees for their own use, if it can be kept out of the surplus, and if you don't get the kind the Rev. Mr. Shearer had. I believe it to be just as nutritious to them as honey or cane sugar, I do not believe it to be injurious to the human system, but I do object to having an article that can be bought by the quantity at two cents per pound put up in a shape to counterfeit the finest honey and sold at the highest price to suspecting persons who would not buy it a second time at any price.

Bee-keepers have been obliged to submit for a great while to putting their extracted honey on the market in competition with a mixture of one-third honey and two-thirds glucose, claiming to be 'choice honey;' it remains to be seen whether they will supinely allow the market for their comb-honey also to be broken down. Let all honest bee-keepers arouse and do what they can to help in this 'war' until the practice of making honey from glucose becomes odious.

AMERICAN ADULTERATION.

The following startling assertion appeared in the *American Bee Journal* for January, 1879:—

'ADULTERATION.—The *Board of Trade Gazette* informs us that the large lot of honey sent to Liverpool by Thurber and Co., of New York, last November, has been condemned by the British authorities on account of adulteration. Being honey in the comb, the only solution of the difficulty that suggests itself (in the absence of the facts of the case) is the probability that the bees were fed on glucose, and that they stored it in the surplus boxes.'

Allusion is then made to our criticism of the honey import, and the Editor goes on to say that,—

'The honey was valued at about $40,000. We are exceedingly sorry to hear of the seizure, because it practically closes the European ports to American honey. Had the warnings of the *American Bee Journal* been heeded, this distressing circumstance would never have occurred.

'This Journal (the *American Bee Journal*) has argued persistently against the use of glucose for feeding bees. Its voice has been steady against adulteration, in all its forms. It has advised that even comb foundations should not be used in comb honey—and even if it was used for starters, that it should be only of a narrow strip, of about two cells in width, because nothing should be used that would in any way compromise the sale of that delicious article of food. Notwithstanding this advice, some have used half a sheet in surplus boxes, and others have filled the sections full of it! It MAY be that this latter has something to do with the confiscation of that comb honey in Liverpool—we hope not, but fear that it is so.'

In consequence of this we have received a letter from Mr. Perrine, of floating apiary celebrity, inquiring as to the truth of the report, and for his information, and that of many other inquirers in America, we can only say that we have not heard a word that would lead to a supposition that any of the honey had been seized. We do know, as a matter of fact, that sundry samples are being tested, and when the analyses are complete we shall not fail to tell the truth about them.—ED. *B. B. J.*

AMERICAN ADULTERATION.

The editor of *The Bee-keepers' Magazine* observes:—'We are pleased to learn that many bee-keepers are sending petitions to members of their State Legislatures and members of Congress from their own districts. Now is a very favourable time, as the adulteration of honey is noticed so widely and condemned by the press, and there is nothing now before Congress to divert their attention from legislation in the interests of the country. We have not prepared any printed forms, believing it better to have each petition express the thoughts of its author, though all should agree in asking for a law with a heavy penalty to prevent the LABELLING AS HONEY any adulterated article, and require the adulterated article to be CORRECTLY LABELLED when offered for sale.'

THE AMERICAN FLOATING APIARY.

At the West Illinois and East Iowa Convention, held in October last, Mr. Perrine was requested to give a word-picture of his floating apiary, which he did as follows:—

'What first induced me to go into it, was the want of white comb honey. I can get all I want of coloured honey, but want hundreds of tons of white honey for my house. I began the honey business at Cincinnati in 1865, removed to Chicago in 1869, where I continued the business, keeping my hands at work, peddling direct to the consumer. I wanted to extend my business and did so

in the Eastern States, afterward in Europe. I received some lots of very nice honey from California, and depended on them greatly for my supply of white honey, but it did not come. I got a big order from Europe, had a great deal of trouble to fill it, and could not do it entirely. Could not get such honey as we wanted to ship there.

'We packed comb and extracted honey in jars and had great difficulty from its candying. Boiling honey hurts its flavour. I went into the country to see bee-keepers about getting nice honey by migratory bee-keeping. Going from place to place could get no encouragement. I went South and found lots of white clover, have travelled in the South considerably. I thought I could make a good thing by planting some seed of good honey plants, so I got $60 worth of melilot clover seed, and *I have it yet*. I tried to get land to plant it on, but could not get it. Then I resolved to try the floating apiary, and began to build two barges. I was kept from starting as early as I wanted to, fully six weeks, by a variety of causes beyond my control. I did not get as many bees as I wanted. Our machinery broke down twice, which threw us back eight days. We were getting behind all the time, so we closed up the hive, with wire cloth. Our colonies were strong, and we lost about fifty by smothering. Owing to lateness of the season, I concluded not to go far North and put my bees on shore about sixty miles above St. Louis. My bees are in good condition for wintering. The floating apiary is an experiment yet. I put about $12,000 in the venture, and I shall keep trying till I know whether it will succeed or not. I invite any of you who wish, to come down and see us. I expect to take my bees to New Orleans this winter. I may not bring all my bees North, but keep some down there for experiment. I propose to try the house-apiary principle on the boats. I would like to ask some one who knows, if bees notice colour more than form. A great many bees get into the river, possibly 25 per cent. The rivers in the South run on ridges, and when the river rises, it runs over into bayous and deposits soil, slanting off into the swamps. The little streams all run swiftly. There are many peculiar things about working barges; have to keep the same side of the barge to the shore all the time. I propose to put the bees on the boats this time in cold weather, then they will come out and fly a few at a time. I think bees return to their hives more by form than by colour. I have tried different colours. We got but few new swarms, the honey did not come in fast enough. I had a little steamer that cost me $2900, and sold it at a loss of $900. I thought of going up as far as St. Paul, but owing to difficulties could not do it. I propose to tow my bees only by night next year. My boats are near 120 feet long. I shall wait till the weather is quite cold before I go South.'

A CRITICISM—COMB FOUNDATION.

BY G. M. DOOLITTLE.

I read with much interest the *new Manual of the Apiary*, by Professor Cook, especially the scientific part, for I learned much thereby. I consider it, on the whole, an excellent work, and it should be in the hands of every bee-keeper in the land. There is an item, however, in regard to artificial swarming, which I consider dangerous, especially to those not posted in apiculture. I dislike to criticise, and would gladly pass this by, were it not that it may result in loss to many who read the work. On page 178 we read in reference to artificial swarming:—

'If the apiarist has several colonies it is better to make the new colony from several old colonies, as follows:—Take one frame of brood-comb from each of six old colonies, and carry them, bees and all, and place with the nucleus. Fill all the hives with empty frames as before,' &c.

If, instead of empty frames, he had said empty combs, this article would never have been written, for in that case no drone-combs could have been built. Having these empty frames filled with drone-comb is wherein the danger lies.

To best give my views in this matter I will quote from an article from my pen, on page 123 of *Gleanings* for 1874:—

'Mrs. Tupper and others tell us to make our new colonies by taking full frames from several old colonies, and putting empty frames in their places, thereby making a full colony at once. We have found ourselves often wondering at such advice, as we never have been able to get one square inch of worker-comb built under such circumstances.'

Although I have experimented much since 1874, I have no reason to change this statement. But, says one, you live in New York and Professor Cook in Michigan, and perhaps this is wherein the difference lies, as we all know that bees do not act alike in different localities. I might think that this difference in location caused the bees to build different comb, were it not that I find on page 13 of *Gleanings* for 1877, in an articles from the pen of E. Stanhope, Pentwater, Mich., this statement:—

'Some eight or nine years ago we were lying awake nights studying on the bee business, and with the rest we got the idea that there could be a big thing done in artificial swarming. We had it (in theory) surely; it would work without a doubt. When the time came round all right and the bees were strong and had lots of brood, just right, we went to a number of colonies and took a frame of brood from each, put them all together in a hive, and gave them a queen-cell; we also put empty frames in the old hives from which we took the brood. The young colonies came on in good time, and did well; but the old ones what did they do? They built the empty frames, every one full of drone-comb, and filled it with drones. Our theory was smashed, and we have never been able to get strong colonies to build worker-comb before swarming time, not even the blacks, as good comb-builders as they are.'

But we have not got to hunt up various authors to prove that these old colonies will build only drone-comb, for Professor Cook tells us they will, in this same Manual. Listen to what he says on page 110:—

'The character of the cells as to size (that is, whether they are drone or worker) seems to be determined by the relative abundance of bees and honey. If the bees are abundant and honey needed, or if there is no queen to lay eggs, drone-comb is invariably built, while if there are few bees, and of course but little honey needed, then worker-comb almost as invariably found.'

As in 1874 I wondered at such advice about making artificial colonies, so I am wondering now that such a system of making colonies ever got in Professor Cook's Manual, and have even found myself wondering if Professor Cook ever made a colony that way, even although he says that by so doing he 'can thus always, so my experience says, prevent swarming.' He must have used empty comb in these old colonies where he tells us to use empty frames.

But, says one, use comb foundation; it has proven a success, and it will remedy all evils in the shape of drone-comb. Now, my friend, I am afraid you have got me in hot water, for Doolittle does not acknowledge foundation to be a success as yet. I gave you my experiments with it up to last year, in the March number of the *American Bee Journal*, Vol. XIV., and although I am a little better satisfied with the present year's attainments, yet foundation is far from being a success when compared with natural worker-comb. In the first place, it has sagged badly, unless built in cool weather; and even in cool weather it sags so that the cells in the upper part of the combs measure four and a half cells to the inch, while natural comb for brood purposes measures five; also, some of

this built out in cool weather, when filled with honey and sealed over, sagged so as to tear the cells apart and set the honey to running, with the mercury at 95° in the shade, while not a natural comb stirred a particle. In the second place it requires twice the fussing and looking after, to get it built out into half-way decent combs, that it takes to get natural comb built: and thirdly, it costs more than natural comb, where you have to pay more than 50 cents per lb.

But, says another, Mr. Nellis told you at the North-Eastern Bee-keepers' Convention, last February, that he was head-quarters for foundation, and that which he made did not sag so as to injure it in the least. Admitted; but if such was the case, why is Mr. Nellis now crying 'Eureka!' in regard to foundation with wire incorporated in it? If it did not sag before, why does he put wire in it now to keep it from sagging, thereby enhancing the price nearly one-half? And then, friend Betsinger tells us in the November number of the *American Bee Journal* that the bees don't rear brood over those wires. I tell you, comb foundation is not yet proven a perfect success, nor will it until it can be used without looking after in any spot or place, and in any weather, wherein a natural comb can, and that at a cost not to exceed 50c. per lb. Don't understand me as discouraging experiments with it, for I do not, but shall keep experimenting, for I am as anxious to make it a success as any person in the land. Mr. Langstroth wrote me in a private letter that he thought he could devise a way to make its use a success, so I will willingly make my bow, and leave the field for a more able pen than mine.

Borodino, N. Y., *Dec. 5th*, 1878.

P.S.—I have said nothing of its use for comb honey, as I have discarded it from the boxes altogether, for the reason that when honey is plenty and the bees are secreting wax, they simply add their wax to the foundation, never touching it to draw it out a particle. By scraping the wax off we have the foundation just as it was given to them, and nobody likes to eat such stuff. My advice would be, discard it from the boxes altogether.

G. M. D.

ARTIFICIAL COMB-FOUNDATION.

TRANSLATED FROM THE 'ALSACE BEE JOURNAL.'

(*Continued from page* 178.)

LETTER III.

The following objections are often urged against artificial comb foundations:—

1. That they are troublesome to fix in the frames.
2. That they warp, and get out of place from the heat of the hive.
3. That they are easily broken and torn.
4. That the bees do not readily take to them, but prefer a piece of natural comb to build upon.

These objections may at first sight appear exceedingly serious, but on closer examination they will be found to disappear at once.

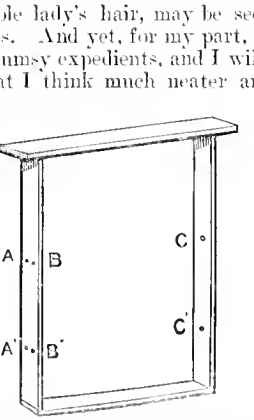
As regards the first, there are several very simple plans of fixing the combs in the frames. That recommended by Otto Schultz, the maker of the wax comb foundations, alluded to in a former letter, is as follows:—

A piece of thin board is prepared of just the shape and size of the frame, or rather to fit inside it, having a border or ledge on which the sides of the frame should rest, of such thickness that the surface of the board should be, as nearly as possible, on a level with the centre axis of the frame. The sheet of wax comb-foundation is then laid on the board, and melted wax is poured into the angle which the sheet forms with the top piece of the frame. It is also fixed in the same way one-third down each side from the top. The lower two-thirds of the sheet should be left free, with a space of from a quarter to one-third of an inch between the edge of the wax sheet and the side of the frame, so as to allow of expansion from the heat of the hive. The frame is then turned, and the same operation performed on the other side of the sheet.

A second plan is as follows, and is recommended by Mr. Duck, an apiculteur of Mulhouse:—A cut is made with a saw right through and all along the centre of the top piece of each frame, also down one-third of each side. The wax sheet is then cut into a trapezium (that is

a figure of which the upper side is broader than the lower). The upper breadth should be exactly that of the frame including the side pieces, and this width should be continued one-third of the way down the sheet. From thence the sheet should taper off, so that the width of the lower edge should be from half to two-thirds of an inch less than the interior width of the frame. The sheet should then be slipped in, lower edge down, through the groove cut in the top of the frame, and fixed with a little melted wax. The shape to which the sheet is cut will allow of expansion in the lower part of the sheet. If the sheets and frames are prepared beforehand, the operation of fixing them will be exceedingly short and simple.

The second objection that the heat warps the sheets, and puts them out of shape, is perhaps the most serious of all, as the lower two-thirds of each sheet, which must be left free, rarely dilate exactly in the same degree, of in the same direction, and so the frames are apt to be glued together when the cells are built. Various plans have been suggested to combat this evil, for though when a slit is made in the frame itself, no great deviations of the wax-sheet are possible; yet this method will not prevent equal inconvenience arising from minor deviations. Thus all sort of arrangements with hair-pins, more wonderful than the artistic efforts of a Paris artist with a fashionable lady's hair, may be seen in some of our friend's hives. And yet, for my part, I must confess I think them clumsy expedients, and I will tell you, my dear friend, what I think much neater and more con-



venient. Look, then, at the annexed engraving. You will see two pair of holes bored in each side of the frame, facing each other, the upper pair about half-way down the side of each frame, the lower pair half-way between the upper pair and the bottom of the frame. Each pair of holes (which are about one-third of an inch apart on the outside) should converge, so as to form only one hole on the inside of the frame. In the engraving, the outside holes are shown at A' B', and A B the inside single holes at the opposite side at C' and C.

To fix the wax-sheet in the frame you use a packing-needle, threaded, with crochet cotton, and you will do well to call a child to help you. Then turn the frame upside down, with the wax-sheet inside, and your little helpmate holding both with its fingers to keep them in place. Pass your needle through A′, drawing the thread across the frame in front of the wax-sheet, in again at C′, out again on the other side, back again through the return hole, across the frame, behind the wax-sheet, in again at the return hole, and out again at B′. Then tie the two ends of the cotton together in a knot at A′ B′; do the same at the upper pair of holes at A, B, and C, and your wax-sheet will be held in a perfect plane between the two threads, while you will fix it at the top by a little melted wax. Leave rather less than a quarter of an inch between the side of the frame and the edge of the wax-sheet in its upper portion, and rather more than a quarter of an inch in its lower portion, and only fix permanently the top of the sheet. No curves are possible in the combs if this plan be followed, while you will find that in a few days the bees have fixed the sides, and eaten away the threads. If you object to their having this extra labour, you can remove them yourself, as soon as the work is fixed.

(*To be continued.*)

DOUBLE SWARMS.

From the Journal of Horticulture.

The policy of uniting swarms is a point in the management of bees that we have never discussed publicly. It sometimes happens that two swarms, issuing at the same time from two hives standing together, unite and settle as one swarm, and occasionally some bee-masters hive the two swarms together with a view of having an extra strong hive for filling supers the first season, or for a strong stock hive the season following. Two swarms thus united are doubtless better in every sense, because larger, than a single swarm. As one queen only is kept and necessary in a united swarm, there is a loss sustained in the destruction of the other if she is a fertilized queen of a first swarm. If one of the queens were caught and returned to one of the stock hives the loss sustained would be less, for the life of a fertile valuable bee would be saved without injury to the swarm. Large swarms placed in moderately sized hives soon fill them, and afterwards do a great amount of super work. A nice point in the art of supering is to give the bees just room enough below for brood, and to let as much honey as possible be stored above.

By paying special attention to large or double swarms, in fine seasons crystal palaces of honeycomb or exhibition glasses of great size may be obtained. Indeed no limits can be placed to the gathering powers of early swarms in such seasons, and swarm hives in being supered are not so apt to send off colonies as non-swarming stocks.

But in regular and general management of an apiary we disapprove of double swarms, for two first swarms hived and worked separately in favourable honey years yield greater results than when worked as one swarm. The best swarms in Aberdeenshire last season ranged in weight between 100 lbs. and 130 lbs. One gentleman there put two swarms united into a hive of combs, and yet this hive reached 118 lbs. only. The swarms probably were not large. In the case of the Carluke swarms, we saw that Mr. James Somerville had three swarms from one hive, the first of which rose to 112 lbs., the second to 94 lbs., the third to 90 lbs. The second and third swarms were, of course, about ten days later than the first, and yet, separately, their joint weight was 184 lbs. This, however, appears to me to be an exceptional case, for when second swarms reach the weight of 90 lbs. each, the first swarms from the same hives go up to about 150 lbs. In good seasons first swarms are generally about one third heavier than second swarms. In bad seasons it is otherwise. The facts of our experience go to support the practice of hiving swarms separately for early work and great results.

In the case of Mr. Rennie's hive which yielded two swarms the results are rather interesting, for the first swarm yielded two virgin swarms. We do not take virgin swarms nor advise others to take them, but in Mr. Rennie's case two were taken from one hive. The mother or dowager hive rose in weight to 80 lbs., her first swarm to 70 lbs., and her second to 53 lbs. The two virgin swarms which came from the dowager's first rose in weight to 143 lbs. Thus we have a united total of 213 lbs. from Mr. Rennie's first swarm of last year. We have never known a single or a united swarm to go beyond 170 lbs. For marked results, or a special end, it may be well to unite two early swarms, but for profit we think they should be hived and kept separate.

A. PETTIGREW.

[This letter has an interest as being so directly in opposition to the teachings of the 'Renfrewshire Bee-Keeper,' see his article on the Stewarton Hive and System, post free for a stamp from our office.—ED. *B. B. J.*]

APICULTURE FOR SPAIN.

We are glad to be able to report that Mr. J Camaschella, of Forest Hill, who already represents in England the Central Bee Association of Italy, has undertaken to write periodically on rational bee culture for the *Gaceta del Fomento*, an official journal published fortnightly in Madrid by the Spanish Ministry of Agriculture and Commerce.

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded; and for the discussion of al theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

DEATH OF PASTEUR BERNARD DE GELIEU.

I believe there are some of your readers who will read with regret of the death of Mr. le Pasteur Bernard de Gelieu, a well-known Swiss bee-keeper, which took place on the 6th January, near Neuchatel. The deceased gentleman had reached the age of eighty-one years. Members of his family for many successive generations have been zealous bee-keepers. Mr. le Pasteur Jacques de Gelieu, his grandfather, was the inventor of a square storifying hive in stages similar to the Stewarton. The father of the lamented apiarian was the author of the *Conservateur des Abeilles*, which was translated into English by the late Mrs. Stirling Graham, who was acquainted with François Huber.

In my communication on page 201, vol. iv., the letter then spoken of was received from Mr. Bernard de Gelieu; I conclude it was my fault that *n* was substituted for *u*.—J. H. ELDRIDGE, *Norwich*.

DEATH OF M. SCHMIDT.

It is with the greatest regret that I have to announce to you the death, at the early age of forty-five, of M. Schmidt, of Barr, the Vice-Presi-

dent of the Bee Association of Alsace and Lorraine. His death will be the greatest possible loss to advanced bee-keepers on this side of the country, for he was a man of great intelligence and most enlightened views. The arrival of your hive, about which he wrote me a long letter, was one of the last pleasures of his life, as he had taken the greatest interest in it. I believe you will find the enclosed translation of Dr. Reisser's letter (*see* p. 193) equally interesting to your readers as the former, and full of useful advice, which if not entirely new, is put in a condensed shape, so as to be practically available.—G. T. Pearson, *Nancy, January 30th*, 1879.

A HONEY MARKET.

Bee-keepers often write as though there was no demand for their honey, after they had taken the trouble to breed bees to collect it. And yet our 'cute Yankee cousins are sending it over a hundred tons at a time, and finding a ready market. What could be a more perfect answer to the outery? Then what is the explanation? Grumbling Britons have to learn to adapt themselves to altered circumstances. The public have had their eyes opened by means of local exhibitions, and the articles in our *Journal*, to the difference between pure, wholesome, and delicious honey, and the nasty rubbish that so often bears the name. Consequently there is an increasing demand for honey in the comb, a form in which purity can with reason be looked for. They want it, too, in a handy form, a want which the small sections will meet. If we are wise, we shall read, mark, and learn.—C. T.

HONEY MARKET IN LONDON.

Allow me, through the medium of your *Journal*, to draw the attention of members of the British Bee-keepers' Association, to subject No. 3 in the circular just issued (*see* p. 187), viz. the establishment of a Honey Market in London, under the management of the British Bee-keepers' Association. A subject most important to the bee-keeper, and not less so to the very existence of the Association; and I would earnestly ask every member to make an effort to be present at the general meeting, convened for the 12th of February, and there to press the Council to action in the matter. The subject I notice is to be introduced by Mr. Jackson, who, from his practical knowledge of the importance of it, will, I venture to think, be able to speak with no little authority.—R. R. Godfrey, *Grantham, Jan.* 23, 1879.

A DISCLAIMER.

In last issue I observe my name appears on the committee of the newly-formed Perthshire Society. I may be permitted to state that this has been done in my absence and without my consent. While wishing all success to the new Society, I think it would have been unkind to the Society with which I am more immediately connected to be found undertaking fresh work after endeavouring to free myself from its secretaryship on the plea of having too much to do.—William Raitt, *Beecroft, Blairgowrie, January 20th*, 1879.

COMB-FOUNDATION.

As comb-foundation has recently been brought before the readers of the *B. B. J.*, I think I ought, having used it with the greatest advantages in my supers, to recommend its use to those who have not yet made trial of rolled comb-foundation. There are, I believe, but three American comb-foundation machines in this country; two only, the first and the last imported, being used for producing foundation for sale; these were imported by Mr. Raitt, of Beecroft, Blairgowrie, a good proof of the enterprise of this advanced and advancing bee-farmer. I had the advantage of using some of the first sheets that were rolled by Mr. Raitt, shortly after the arrival of his first machine, the year before last. The beauty of this foundation was much admired by all who saw it. To those who have not yet used this rolled foundation I would strongly recommend them to do so this year, as I feel convinced that whoever tries it fairly will certainly continue to use it. We cannot, as the great multitude of American bee-keepers (and not a few British) have already proved, afford to do without it if they want super honey. I have found that the quantity of super honey obtained when sections or other supers are filled with it astonishes our neighbours, who keep bees as their forefathers did. To compare my yield with my neighbours who use no foundation, it seems to make a difference in my favour of about 20 lbs. of super honey from each hive, speaking from an experience of two seasons. This is, I believe, one of the poorest honey-producing neighbourhoods; what little can be gathered is generally quite insufficient to induce bees to carry it into supers, unless there is something either in the shape of virgin comb or comb-foundation to tempt them to do so.

Comb-foundation is, in its way, as useful and as much to be desired by progressive bee-keepers as are sectional supers, hives with frames, and honey-extractors. For supers the foundation should be thin: six square feet weighing about one pound. For brood frames five square feet, or less, to the pound answers well. Supers should be filled with foundation, a space of not more than a quarter of an inch being left between the edges of the foundation, and the sides and bottoms of the supers. Foundation should be carefully attached to the top bars of supers and frames, with melted wax, which is very easily and quickly applied with a little brush. —J. H. Eldridge.

REMOVING BEES.

I should be much obliged if you will say in next *B. B. J.* the best time to remove my twenty-five stocks of bees to my present home, the distance being about a mile.—S. C., *Shepreth, near Royston, Herts.*

[Note.—The distance being an easy one, the removal may be effected with perfect safety at any convenient time during the present month. A clear moonlight evening would be preferable, as they will all be within the hive, and on arriving at their destination they will not be so likely to fly abroad as if their removal were effected by daylight. Stop the entrances, open the ventilators, *i.e.*, uncover the feeding holes at top, leaving

the perforated zinc bare, then lift hives and floor-boards on to a large square of canvas, tie the corners and let them be carried on poles between two men, or two at a time by one man with shoulder yokes. Set the first pair in their new positions, but do not release them until the second pair have been brought there, by which time they will have quieted down. Treat each pair in the same way, giving the last half-an-hour's rest before releasement. Removal to a distance of a mile at this season is sufficient for safety, as the bees will not fly abroad for food, and will not be likely to find their old location, and by the time the honey or pollen supply is sufficiently tempting, a fresh population will have been produced, which will have no knowledge of the old home, so will not be likely to leave their present one.—Ed.]

BEE AND HONEY STATISTICS.

Can any readers of the *Journal* inform me if there are any statistics published of the number of colonies of bees in the United Kingdom, or of the quantity and value of home-raised bee produce? If there are no statistics of the kind to be had, might I take the liberty of suggesting that you should endeavour, through the *Bee Journal*, to have such collected and published?—G. A. Rollo.

[We shall be very pleased to do all possible, but do not quite see how it is to be done, unless a column were left in the next census paper.—Ed.]

RIPENING HONEY.

Amongst the large amount of information contained in the pages of the *Bee Journal* about bees and their doings, it is singular how little there is about the treatment of the honey after the harvest has been reaped. Probably honey extracted from new combs, which had been sealed over, would require no treatment at all beyond straining; but where the combs are more or less discoloured, as is usually the case, and the honey has not been evaporated and sealed over, some treatment seems to be necessary.

In using the extractor last year to empty the upper tier of frames in some doubled hives, I tried as much as possible to empty them so frequently that the bees would not have time to seal over any of the honey, so that I might be saved the trouble of, and the mess caused by, uncapping the cells, and the bees the trouble of sealing their honey, and of repairing the combs, which are always to some extent injured by the process of uncapping.

So far I succeeded well enough; but, whether from this or some other cause, about half the extracted honey has remained perfectly liquid, and the remainder has only quite recently granulated. Now, I should be very glad if some advice as to whether I can do anything to cause this liquid honey to granulate. I have been advised to place the jars in water, and heat the latter until it boils, and have been told that this is a good plan to adopt when the honey is first extracted; and that, as by this means any excess of moisture is got rid of, and all impurities rise to the surface, and can be easily removed; the honey may then be covered up without fear of its not keeping. If you, Mr. Editor, or any of your correspondents, can give me any information on this subject, I shall be very grateful.

I was amused at Mr. Rusbridge's answer in the *Times* to 'A Country Parson,' who inquired where he could find a market for his honey, and how much a pound he might expect. The answer tells him how much a pound good honey is worth, but there is not a word as to where a market is to be found, and the poor country parson is no nearer selling his honey than before,—H. Jenner Fust, jun., *Hill, Gloucestershire, Jan. 15th*, 1879.

[Note.—If honey be heated to boiling point, it loses its flavour, and is to a great extent spoiled. Following nature would appear to be the best practice; and seeing that honey stored by the bees is seldom subjected to greater heat than 100° Fahr. there can be little doubt but that that temperature maintained for a few days would cause the crudest honey to be sufficiently evaporated. A stock of bees will fill, evaporate, and seal over a 30 lbs. super in a fortnight, the average time of evaporation being about two days, but it is possible the bees may help the process by sipping the watery portions of the nectar for their own use, and as food for the nursery. A little experience would, however, soon clear up the question, and we should like to hear from our esteemed correspondent after he has tried the process with his now liquid honey.—Ed.]

HONEY CRYSTALLISING.

You may perhaps remember that I wrote to you last autumn respecting some honey crystallising so early in the season as August. Upon further inquiry in this neighbourhood I am told that any honey taken in July will always thicken in a few weeks' time. The cottagers call it 'maiden honey,' and so much do they think of it, that it frequently happens when a stock has swarmed they will destroy it for the purpose of obtaining this 'maiden honey.' I trust my bees are doing well, but dare not open them this weather. I have to move one hive; and I suppose this should be done the earliest opportunity.—A Lady Bee-keeper.

THE PARSON'S BEE VEIL.

I am surprised that 'Sheffield,' criticising the Standard bee-veil, which is recommended for its 'utter simplicity,' should, without testing his Polyphemus affair, have thought that a burning lens would have been better than plain glass. Fancy a man trying to pick one particular bee out of 20,000 with a magnifying glass! and with the certainty, too, of having his eye cauterised, or the tip of his nose frizzled, every time he examined a hive. I thought a 'Sheffield Whittle' had been a sharper blade.—'Raven' Junior.

AMERICAN HONEY.

I am much obliged to you for obtaining the result of the analysis of the condemned American honey. I conclude by saying 'briefly' that you don't imply that anything is omitted from the analysis. In that case will Dr. Clarke kindly give us his reasons for declaring that the fifty-seven per cent of glucose mentioned in his analysis of this American honey was prepared from starch? Why not from cane-sugar? Might not very old honey attain a similar

composition to that of the condemned samples, if kept in a warm, dry place?—E. R. N.

[The word 'briefly' was used apologetically, in reference to the brevity of the report, which is published verbatim, rather than as a suggestion that it had been condensed. Dr. Clarke says that the adulterant was 'starch glucose;' whether he will give his reasons for so doing is another matter; but as it is a subject of general interest, we hope he will do so.—Ed.]

BEES IN PEACH HOUSES.

I see the *Cottage Gardener*, and hear from gardeners, it is a good plan to put a hive of bees in my peach house where the trees are all coming into flower, but unless I am mistaken I shall kill my bees, as will they not batter themselves against the glass till they fall, which I think would be very cruel. Kindly send me one word of advice on the matter as to whether I shall kill the bees or not.—Staines.

[There can be little doubt but that bees confined in a heated glass house would be, as is usual, subject to the natural consequences. Tempted forth by the warmth they would endeavour to soar, and, not knowing that glass intervened between them and the world at large, they would, in many instances, 'fly' against it, and nearly knock their eyes and appurtenances into pummy, and then in a blundering way they would buzz against the glass until exhausted, and would gradually subside. It is, in such a case, a question of '*bees versus fruit*,' and if peaches are required or desired under such difficulties as the present season presents, when no insects in a normal condition dare stir abroad, and none but bees can be forced to do the needed work of fertilization of blossoms, a choice must be made, viz. bees *versus* fruit, or *vicâ versa*. One reason for bees dying when battling with glass is exhaustion, and another starvation, and how far both might be overcome by placing food where the exhausted bees would find it is a question we are unable to determine. Hundreds of live bees might be picked up daily, and placed in a feeding-bottle, which, being inverted over the feed-hole, would save them from time to time, but probably a great number would be lost, but given a set of peach-trees brought into blossom by artificial heat at a time when opening the house would be fatal to them, will the loss of a few bees be a consideration in view of the loss of the fruit crop?—Ed.]

A VISIT TO FAIRLAWN, SOUTHALL.

In December of last year, during the Cattle Show week, I was in London, and thought I would pay a visit to Fairlawn, Southall. I found Mr. Abbott at home, and went through the shops, where the workmen were busy making up a large order for Combination hives, which were wanted by Christmas; and all round the gardens and paddock, and into the office, where I tasted some of the American comb-honey: I must confess I did not like the taste of it. Mr. Abbott likewise showed me a very good smoker which he is bringing out, which will keep alight a good length of time (I myself use one of Mr. Neighbour's, and find it first-rate, and I have had it keep old corduroy alight for more than an hour.) Mr. Abbott showed me all his latest inventions and ideas, and with his customary civility and hospitality, and with conversation on bees, hives, &c., I may say I passed a very agreeable afternoon, although the weather was very severe.—A Warwickshire Bee-Keeper, *Weston, Leamington, Jan.* 22, 1879.

THE SEVERE WINTER.

I have lost both my stocks, headed by Italian queens, during the late severe weather, so am now bankrupt. I cannot understand how it is, as they had plenty of food, and the strongest lot were in a double-walled Woodbury, with outer addition, and a quilt at the top. I have had bad luck for some years, and if I did not love bees, should not begin again.—J. R. J.

ECONOMISE THEIR LABOUR.

Having read an article on this subject in the American *Bee Journal*, March, 1876, and as I like the principle, and try to act up to it as far as circumstances will allow, I will give it as near as I can. No doubt but thousands are situate like myself, in respect to bee-pasturage. For example, I have sixty swarms to commence the season with; I shall work forty for box or small-frame honey, as comb-honey is our hobby; twenty swarms I want to build combs, and furnish broods, the brood I want to keep up the strength of honey-storing stocks. Natural swarming is the only plan to succeed. As soon as a swarm is on the wing, take from three or four stocks of the reserve ones, and fill the hives to be used, all but one or two combs, allowing the bees to build them in the centre. All those combs must be well filled with hatching-brood: now cover the entire top with boxes or frames, and hive your swarms; then compel them to go into the boxes, as all below is full, and every day those stocks are growing stronger from hatching brood. Such swarms are very strong, and must be well ventilated, by raising the hive up so as to make a passage for the bees all round; if honey is plentiful, boxes will be filled in six or eight days. In the course of twenty days all frames must be overhauled. Remove all frames from hives that are nearly filled with honey, and fill in with hatching-brood from some of the twenty stocks, to keep up the strength of the hive.

From seven to eight days after a stock-hive has swarmed, shake all the bees off the combs, and cut out queen-cells (all of them); remove combs that contain much honey, fill in with capped brood, put on supers, and run into this hive a big swarm.

Do it in this way: Hive your swarm to be united, and set it close to the one to be run into; leave it till nearly dark, then raise hive one inch in front on blocks, bring on your platform, and shake down swarm eighteen or twenty inches in front, they will travel in, just like any other swarm, and your job is done. Now we have a stock stronger than it was before casting its swarm. Now if the flowers are yielding honey, you will get some; follow up this plan till you have returned a big swarm to each hive; but should swarming continue, you may have to make some more new swarms. What shall we do with the combs that are removed

from time to time containing honey? Extract and give to your brood-stock, or keep them in reserve, as they may be wanted later in the season. Suppose I should hive ten or fifteen swarms in August, and I have but two empty hives, I will use them, and return all the rest after removing all queen-cells; but do not run a swarm back to its own hive, as in many cases it does not satisfy them, and they often come out again. Some may be disposed to inquire, What is gained by this method? First, that we have but a very small amount of drone-comb built, as all our brood stocks build worker combs, and secondly that our stocks are all very strong; and all receptacles are filled very quickly, so that the honey has a much clearer and finer appearance; and, lastly, we are satisfied that a much larger amount of surplus is the result.

Another plan used by us can be found in the February number of the American *Bee Journal* for 1872, on doubling stocks. We still practise this plan, more or less, and have found nothing better. On this plan we have more than trebled on our surplus; we have united hundreds of swarms in this way, and in but a very few cases had to resort to scenting them with peppermint, or anything else.

'In conclusion, we think it would be better if writers would say more on the subject of honey, and how to obtain it; not extracted alone, but nice comb-honey. But few articles appear on this one subject, the most important of all. I confess I keep bees for one object alone, and no other, dollars and cents.'

This is what Mr. Butler says, and I think it is as good a plan as any I ever saw. Of course it can be modified as occasion may require. Last year two or three stocks were full of bees, in hives with fourteen frames, but were not working satisfactorily in their supers. I took all the side combs out, and shut them into a space that would only hold six combs, putting on the supers as before; of course being full in the large hive, and having it suddenly contracted, the bees were compelled to take their honey into the supers. I have now fifty-five stocks altogether; forty of these are in bar-frame hives, and fifteen in straw skeps. I have three stocks of English, three of hybrids, one Carniolan, and the remainder pure Ligurians. When I examined them last—about January 14th—they were all right; but it is a trying winter for them, and I have been very much troubled with tom-tits and sparrows, fetching the bees and eating them, though I have done what I could to prevent them doing so.—A Warwickshire Bee-keeper, *Weston, Leamington, Jan.* 22, 1879.

LIGURIANS *v.* BLACKS.

From the letter of 'Capt. C. A.' in the *B. B. J.* of last month, I am inclined to think that he has not given his black bees the credit due to them, or that he has lavished undeserved praise on his Ligurians. I think a bee-keeper of experience would scarcely have considered it to be a mark of strength for the bees to be 'hanging out' on the 1st of August, if they were only hived on the 22nd of June, and for this reason. Even allowing that directly the bees were hived they began to build comb (though the secretion of wax would take them about twenty-four hours), and allowing that the queen began to lay instantly, at the rate of 1000 eggs per day, an impossibility; yet before three weeks, namely 13th July, not a bee would have hatched, and who can say how many would have died? From the 13th July until 31st July only 18,000 would have been born, allowing the extravagant hatch of 1000 bees per diem. Now, I don't think the addition of that number to a young colony would fill a Woodbury hive to overflowing, especially after making deductions for the high rate of mortality during the first fortnight or three weeks of a swarm's existence. No, it appears to me from the case as stated in the *B. B. J.*, that if the poor blacks had not been consigned to a cruel fate by the owner for whom they had toiled, they would have had the best of it. The Ligurians very likely during a honey glut, placed their stores where the brood should have been, and so were forced to hang outside idly, as it is well known they will do in such a case. What is worse, very likely they built drone-cells to store the honey in. The blacks, perchance, had a younger and more active queen who took possession of the cells as quickly as formed, and thus a large family consumed most of their income. Doubtless, in this case, with a little of the judicious feeding so often urged in the *B. B. J.* they would have made a strong stock this year. Alas, poor bees!

As to bees knowing people, I have heard many tales about their sagacity in this respect, and have never seen it exemplified, but I have seen them sting the editor of the *B. B. J.* (though he didn't seem to mind it at all), and I'm sure if bees know any man, his bees should know him.

In the honey season bees are so busy that they will not take much notice of anybody close to their hive, but is it to be wondered at that bees, black or yellow, should sting and follow about a groom most likely just come from the stable, and smelling of it? I should like to know how the Ligurian stock will be off for drones in April or May next.—A London Bee-keeper, *The Poplars, Seven Sisters' Road.*

[Our correspondent underrates the productive power of a queen in suggesting that the laying of 1000 eggs per day is an extravagant estimate in June or July. We should calculate on the deposition by the queen of 2000 per day at the least, when the hive is in full working order.—Ed.]

INTRODUCING QUEENS.

Professor J. Hasbrouck, the editor of 'Queries and Replies' in the *American Bee-keeper's Magazine*, in reply to an observation, 'Introducing queens has been my great trouble the last season. Can't you help us?' says, 'I think I can. Thanks to Mr. Betsinger, the ingenious inventor of the popular section frame, known by his name, who told his method of queen-introducing to a knot of bee-keepers at the last convention, I have used it altogether since, and consider it one of the best things I have learned about bees. This winter make yourself a dozen or so introducing cages. The lower part of the cage is a rim of tin one half-inch deep, and the top is tinned wire

cloth. Make a guage of wood five or six inches long, one and one-half inches square. Bend the rim of tin about this and solder the ends together. Cut a piece of wire cloth two and one-half inch square, put it on the end of the cage and bend down the edges. Shove these edges inside the tin rim and stick them fast with solder, and the thing is done. It is but little trouble to make them, and, when you are at it, make plenty. They are handy to have about—useful for many things, especially for protecting queen cells in the hive, and they are made square so that diagonally they may be long enough for this purpose.

Now to introduce the queen. As soon as your queen arrives, pick out the queen from the hive into which you wish to put the new one. Take out one of the combs, shake off the bees, and unless you are pretty dexterous in handling queens take it to the house. Take out the queen from the shipping cage and set her alone upon the comb over some capped honey and quickly put one of the introducing cages over her. Don't cut her in two with the edge of the tin. Press the rim into the honey down to the septum. Carry the comb back to the hive, run your penknife blade through the comb opposite the cage—don't stick it into the queen—twist it around, breaking up the cells, and then withdraw it, leaving the broken pieces in the hole. Then set the comb into the hive, and in half an hour or less the queen will be out and safe every time. You need have no doubt about it, and need not stir up the colony in a half-hour to see if she is not killed, as the editor of 'Gleanings' advises his readers to do. Such advice cannot but be pernicious—but good for the queen trade. Leave them alone for a week. If your hive has been queenless for a long time, always put a comb of young brood from another hive into it before attempting to introduce a queen, and let them start cells, and they will be a sure proof to you that it has no queen or fertile workers. I think it is safest to cut out all queen-cells that may be in the hives, before introducing a queen, but a gentleman who handles as many queens as any one in the country lately assured me that it is entirely unnecessary. He says that as soon as a queen is rightly introduced to a colony she destroys all queen-cells that may be in the hive, and that the workers tear them down and carry out the immature queens. I should be afraid to risk it with a queen I valued, as I think I can recollect of losing some queens when the only reason I could assign was queen-cells overlooked. I am going to test this matter another season, as if the bees will tear out the cells with certainty, when they get a new queen, I can have them do it more cheaply than I can do it myself.'

[Note.—Should any of our readers be desirous of trying the above method of queen introduction, they will find the old circular pipe-cover cage, introduced by the late Mr. Woodbury, a great improvement on the square one above recommended. A square cage requires direct pressure through the cells, but a circular one may be as it were screwed round, and made to cut its way down to the midst of the comb. This is particularly apparent when caging queens on old comb.—Ed. *B. B. J.*]

Echoes from the Hives.

Winter Passages.—'I have just sustained a deplorable loss in the shape of two hives of bees which I have found dead, and I am afraid for the lives of the rest. At first I thought it resulted from extreme cold; but now I fear their death was not unconnected with a dearth of honey, although they both had some sealed honey in their hives. What makes me think they were starved is the fact that the barley sugar I put under the quilts was all gone, and the honey was in the outside combs. Can you advise me what to do with the four I have remaining. I am supplying them with barley sugar, which I think they are taking all right; but I am afraid that they will want some honey or water to liquefy it with. The Ligurians appear half torpid when I remove the quilt, but the black bees flew out at me yesterday.'—H. W.

[The loss undoubtedly arose from the absence of winter passages through the combs to enable the bees to get to outer combs without being obliged to leave the main cluster, coupled with the fact of insufficient supply in the autumn. We would take the remaining stocks, if short of food or likely to suffer as above suggested, into a warm, but dark, room, and get them well thawed into life, and then give each about a pint of thick syrup, which they could store about their brood nest. The entrances should not be closed while in the room, or the efforts of the bees to get out will perhaps change their their danger of starvation to that of suffocation.—Ed.]

'Your Smoker I think is an *excellent one*. It wants one little addition—a tin tube, to put on when the entrance-board happens to be long. This, however, any one can easily provide for himself. I think your *Journal* one of great literary interest. I have read it this month with much pleasure.—J. E. R., *Leatherhead, Surrey.*

Deanfoot, West Linton, Jan. 7th.—'I have received the hive all safe, with Leaflets. It is a very nice one; it is well named "Standard," as it is a hive that will suit everybody.'—Francis Baillie.

Hybrids v. Blacks.—*Darroch, Pitlochry, 9th December, 1878.*—'I have much pleasure in forwarding my subscription, and wish you every success in your labours. I may state here that my bees did exceedingly well this last season. You may recollect sending me a Ligurian queen in the summer of 1877, which died within a week's time. However, the bees succeeded in raising a young queen from her, which became fertilised by a black drone, so I had high breed the first season. But, to my great disappointment, in March last, on examining the hive, I found in it foul brood, to a great extent. So I risked once more, and united the Ligurian queen to another black stock, and the result was beyond my expectation. From it I had *a swarm*, and 74 lbs. of honey in supers. Whereas, from another strong colony of blacks, on the non-swarming system, I obtained no swarm, but just the same amount of honey. I find that the produce of three of my stocks amounted to 370 lbs. of honey, which might be valued at upwards of 20*l*. If you judge this of any interest you may insert it in the *Journal*.'—Valerian Novitzky.

'I am thinking of getting some transparencies taken by a photographer to illustrate a lecture on bees; and if you have a spare copy of your own photo. I should esteem it a favour to receive one. When I get my transparencies I shall then be able to show up the king of the bees as well as the queen.'—D. W. P.

Queries and Replies.

Query No. 290.—In reply to my query (288) you say a cheap Woodbury hive would be about the right thing for me.

Kindly state in what way this hive would answer my purpose better than the '*Standard*,' or '*Combination*,' as these are said to be the best hives yet introduced.

As regards the 'Stewarton' principle I could never understand how this is done. W. J. G.

Reply to Query No. 290.—The Woodbury was mentioned on account of its size, because as therein stated the bees appeared to have been barely able to fill the boxes which had been formerly given to them as domiciles. These boxes were about 15 inches square, and 11 deep; the Woodbury, 14½ square, and 8½ deep

is well adapted for supering, which we presume was what you required. Putting two swarms together is part of the Stewarton principle of management; we send you the leaflet thereupon.—Ed.

Query No. 291.—Will frames of comb that have been allowed to go mouldy do for swarms next May, or is there any way of cleaning them? What is the meaning of there being several white skeletons of bees on the alighting-board this fearful weather—bees not come to maturity?—*Shrewsbury.*

Reply to Query No. 291.—There will be no harm arise from the mouldiness unless it has affected the honey in the cells, if there is any, in which case if bees partake of it during a spell of cold weather it might cause dysentery. It would be well to remove and dry the combs, when the mould can be brushed away with a soft brush gently used. Any pollen that may be in the comb it would be well to pick out when dry, to save the bees the labour of doing so in the spring, when they require the comb for use. The appearance of white skeleton bees at the hive entrance is, as a rule, a sign of short commons within, a state of matters which teaches the bees to prevent the production of more consumers. Furthermore, it shows that the need is pressing, and it will be observed that they have sucked out all the juices from the brood, probably to save their own life.—Ed.

Query No. 292.—(1) Will a deal box one foot square with a perforated kiln tile on top do for a stock hive? (2) My bees broke out of the skeps in the snow-storm, and fell apparently quite dead. I picked them up, put them in a small raisin box, placed them before the fire, and in a short time I had the nicest music you ever heard. I am feeding them with dry sugar, and they seem to do well. How will I return them to hives? I feed my bees every winter on dry sugar, and find no complaints. I would wish to get out of the 'smotheration school' if I could.—J. Traynor, *Tinahely.*

Reply to Query No. 292.—(1) The size proposed will do very well, as an average; but a quilt on the top of the box will be better than the tile. A sound roof is indispensable. (2) The resuscitated bees should have been returned immediately they began their music. They should have been put into a feeding bottle on the first instance, which, on their returning to life, could have been inverted over the feeding hole. Long absence from the hive will make them strangers, and in their being returned they may be killed, or, on the other hand, they may kill their queen-mother, and so ruin the hive.—Ed.

Query No. 293.—I want to ask you one or two questions, but if you will kindly answer them in the next number it will do very well. (1) I have got to move my hives into another garden, about 300 or 400 yards. Shall I do it in February, or wait till later? (2) Can I begin slow bottle-feeding as early as the 15th February with safety if the weather is open? (3) I want to get my three remaining skeps into box hives. I would prefer to make two out of the three, and have them rather strong. Could I venture to transfer them on a fine day in March? I do not see how to avoid the danger of chilling the brood. Suppose I transferred the combs in a warm room; would the bees take any harm for two or three hours without their combs on a fine day in March? You see, if one waits later there is so much brood in the combs. Of course, I don't mind running some risk. (4) I should like to work my two frame-hives on the two-story plan, recommended at page 153 of December, and which I feel certain you recommended yourself in an editorial, though I cannot lay my hands on it. I have three empty hives of yours after giving away those I have, and I could use one of these for the upper story. Then if I put my combs from the skeps into the other two boxes I ought to be able to super them, though they are not so strong as my box hives. You will be interested to hear that your 4*s.* 6*d.* Cottager, into which I put a swarm on the 4th June last summer, was in the best order of any hive I have after the last long frost. We had twenty-six days of frost last month, and on four days of it the thermometeter was *below twelve degrees* above zero of Fahrenheit; one day going as low as nine degrees. Moreover, we had a good foot of snow on the ground nearly all the month. Yet I did nothing to protect it at all. I put an extra bit of old carpet over the quilt, cutting a small hole in the centre of the top, over which I put a bit of tin with holes in it to let out the vapour, and I pasted one sheet of brown paper around the hive; otherwise it was exposed in full air to all the elements. When I examined it at the thaw there was no moisture at all about it, and there were very few dead bees; and directly I touched the quilt out came all the bees like a flock of sheep, as lively as anything. The big hive was also very well; but I am rather anxious about its queen, and I cannot open it to look. Two of my skeps were full of dead bees, and *reeking with moisture*; the third (which is an old stock, and had a young queen in consequence, but which I thought the feeblest), is quite dry, no dead bees, and very well.—G. F. Pearson.

Reply to Query No. 293.—The bees may be safely removed at once, but when set in their new positions put something in front of their entrances to attract attention when they leave the hive—otherwise they may get lost. Bees do not travel many yards at this time of year, so are not likely to find their old locality before getting used to the new one. Slow bottle-feeding should be begun when crocuses and other early spring flowers yield a supply to the bees. It is not wise to create huge colonies too early—*i. e.* before there is likely to be a fair natural supply of food for them. Keeping up the strength of strong stocks on artificial food is a seriously expensive matter, particularly when the bees are active, and should be avoided if possible. We have usually given the end of the month as *about* the right time to commence stimulation: but in this extraordinary climate dates are misleading, and cannot be relied upon.

Making two out of three stocks.—The transferring may be done in March if the weather will permit; but it will be well to delay it until settled weather, as there will be a possibility of utilising the spare queen. Our method of proceeding, to form three into two, would be to give one set of brood combs to two lots of bees, and two sets of combs to the other lot of bees. Two of the stocks can be easily driven and united, almost without loss of bee life, and in a quarter of an hour the combs of one can be fixed into a hive, and the bees admitted to them.* As a matter of course, the swarms to be united will be those standing next each other. The second hive of combs can then be transferred, but the brood combs being of the most consequence should receive first attention, and when fitted to their frames the third stock of bees should be driven out and the lately-transferred combs given to them at once, and their own combs—*i. e.* the brood combs of their own hives can then be transferred and added *seriatim*, and all the other combs can be fitted to frames and given to the bees on a later occasion. By this means no brood-combs need be kept away from the bees for more than half-an-hour, and there will be little risk in uniting.—Ed.

Doubling Stocks.—The doubling principle is doubtless excellent when the object in view is extracted honey. Having two stocks, both flourishing, and the harvest at hand,† the two stocks that are to be harnessed together,

* For uniting swarms, see page 185.

† Every bee-keeper, whatever may be his surroundings, ought to know when his harvest is due, and should prepare his stocks accordingly. The aim should be, to have vast populations when the harvest is, or ought to be ready, encouraging breeding except with that object (unless swarms be desired), is sheer folly.—Ed.

should be united according to the directions given on p. 185 for uniting stocks, bearing in mind that they should already be near each other; and when the bees have mingled peacefully, the brood comb of both should, if possible, be crowded into one hive, to be the lower, and the remainder into the upper hive, after the honey has been extracted from them. One of the queens should be captured, as fertile queens are often of value, and the whole of the bees should then be allowed to take possession of their joint home. Thus there will be one hive cram-full of brood with already a double and increasing population, and there will be a large set of empty combs in the upper story—in the right place for storage, be it remembered, and with the honey-harvest at hand; and if honey does not come in at the rate of ten pounds at least per diem, it will not be the fault of the bees or the system. It must, however, not be forgotten that the average life of a bee during summer does not extend beyond six weeks, and therefore, as in this double stock, there will be only one laying queen: the population, after about three weeks will gradually decline, a fact which indicates that judgment is required in respect of the 'doubling.' Filling one well-populated hive with the fully-sealed brood-combs of two or more for the sake of obtaining huge store-supers is an old dodge, the already strong population being quickly reinforced by the rapidly hatching brood, which, as before stated, was supposed to be 'sealed' when placed in the hive. Stocks doubled in the spring will not be so strong in the autumn as to permit of their division (multiplication it is usually called), as through the dwindling hinted at, the stock will be no stronger in bees than any other ordinarily good stock, and therefore an apiary conducted solely on the doubling principle would soon be reduced by inverted multiplication. The double of eight would be four; the double of four, two; and the double of two, one only; when if the apiary were to be kept alive, 'division' would have to be restored to, to increase the number of stocks, and get up its strength in the number of stocks. The doubling principle is a good one only when forming *part* of a system, indeed from whatever point they may be viewed, *all the principles recognised in bee culture* are good in similar degree, and it is only when a FANatic or LUNatic is absurd enough to believe and insist that the one principle which has permeated his little brain, to the exclusion of all other intelligence, is the one correct system, and that all others' recommendations are the outcome of trading avarice, that we feel inclined to to enter a disputing protest.—ED.

NOTICES TO CORRESPONDENTS & INQUIRERS.

THE acquaintance of bee-keepers in the neighbourhood of Bridgewater is desired by the Rev. D. W. Pennell, of No. 2 Thornbury Villas, Wembden Road, in that locality. Pastoral care in a district where bees could not be kept has prevented the enjoyment of his favourite pursuit for a time; but now he hopes to be able, by counsel and help, to stimulate the bee movement in his present neighbourhood.

JOHN WHITE, *Falkland, Fife.*—The long-hole queen-excluding zinc is in sheets, eight feet long and three wide. Cut to dimensions for hives, it is one shilling per foot super; but by the piece it is offered at *8d.*, or 16s. for twenty-four feet.

SECTIONAL SUPER.

HIVE SINGLE, AS IN WINTER, AND WITH SECTIONAL SUPER ON

HIVE DOUBLED.

THE GREAT HAMPSHIRE BEE-FARM NEAR STOCKBRIDGE.

The 'Sailors' Bee-hive,' as exhibited at the South Kensington Gardens, Stamford, and other Bee and Honey shows, consisted of two body boxes, roof, floor-board, intermediate board and sectional super. No alterations have been made in the internal or external arrangement of the hives since last exhibited.

The body boxes can be used either for stock hive, super or nadir, being exactly of one size, and were originally made for the 'doubling principle,' for which they are still used. They can also be placed over a hive and filled up with sectional super bars or sections.

Here at the Bee Farm all bar hives are the same size and pattern, all parts, such as floor-boards, roof, bars, intermediate boards, sectional supers, fit every bar-frame hive used. There being no special parts for certain hives. All parts are thus interchangeable. The hives are well painted and stand in the open.

The Bee-farm is always open to visitors, Sundays excepted, when the hives can be seen and the bees working in them in the different principles, and all information is gladly given. The nearest railway station is Horsebridge.

P. E. MARTIN, *Proprietor and Manager.*

SUBSCRIBERS' COLUMN.

To meet the wants of Subscribers who require a cheap mode of advertising their wants, we have opened an Advertising Column, for non-trading Subscribers only, wherein they may make their wants or wishes known at the rate of One Penny for every six words, or part of six words, but no advertisement must contain more than thirty-six words.

Stamps to accompany in all cases, and there can be no reduction for repetitions.

PLASTER CASTS from Worker Combs, for making comb foundations up to 14 inches by 9 inches, 2*s.* 6*d.*; Drone for Sectional Supers, 8 inches by 4 inches, 1*s.* each, or 3*s.* per pair, packed. R. Iliffe, Hinckley.

DRY PUFF-BALL, 1*s.* per packet. S. F. Clutten, Fressingfield, Harleston, Norfolk. fo. 38.

GLASS HONEY BOTTLES (best flint glass) with wide neck for feeding. Hold 8 or 9 lbs. each, properly packed, 3*s.* each. C. J. Smith. fo. 45.

FOR SALE.—Vols. III. and IV. of *British Bee Journal*, complete. Unbound, 5*s.* each. Letters to Editor.

LANGSTROTH on 'The Hive and Honey Bee.' 9*s.* Free. Letters to the Editor. fo. 101

QUINBY on 'The Mysteries of the Bee-hive,' 8*s.* 6*d.* Free. Letters to the Editor. fo. 102

FOR SALE.—Nos. 2, 3, 4, 8, and 10, of *B. B. Journal*, 1*s.* each. Apply to the Editor. fo. 104

VOL. II. *B. B. Journal*, with Index, minus the No. for May, 5*s.* Office of *Journal*. fo. 105

VOL. II. *B. B. Journal*, minus May and Aug. Nos., 3*s.* Office of *Journal*. fo. 106

INDEX, Vol. I. Price 6*d.* Apply to Editor. fo. 100

VOL. I. *B. B. Journal*, very scarce, 30*s.* Apply to Editor. fo. 101

VOL. II. *B. B. Journal*, scarce and valuable, 21*s.* Apply to Editor. fo. 106

WANTED.—Wax in Cake, cleared, ready for use. E. W. Lister, Kirkburton.

FOR SALE.—A Neighbour's Bee House, to hold two Hives. Original cost £4 4*s.* (has been newly roofed and well painted), price 50*s.* Editor.

FOR SALE.—L'Apiculteur for 1877. Edited by M. Hamet. Price 6*s.* post free. Address with Editor.

FOR SALE.—The well-known Italian 'Anatomy of the Bee, and its Enemies.' Highly instructive. Indispensable for Winter Lecturing on Bees. Price 21*s.*, unbound. John Camaschella, Derby Villas, Forest Hill.

WANTED.—Any quantity of clean White Drone Comb, for use in supers. Letters to P. S. N., under cover to the Editor.

SIX new large improved Straw Hives, eane worked, flat tops for supering, &c. Price 11*.*, or 3*s.* 6*d.* each, Isaiah Gadd, Wokingham, Berks.

ABBOTT'S 'Little Wonder' Extractor, equal to new, price 15*s.* 6*d.* Isaiah Gadd, Wokingham, Berks.

FIVE good, healthy, and strong Stocks of Bees, in Straw Hives. Price 15*s.* 6*d.* each. Isaiah Gadd, Wokingham, Berks.

'ROYAL FOREST' Hives, Rye Straw, eane worked, flat top for supering, &c. Price 3*s.* 6*d.* each. Smaller size for supering, 2*s.* 6*d.* Isaiah Gadd, Wokingham, Berks.

STRONG Stocks of Hybrid and Black Bees, in Straw or Wood Hives, to be sold cheap. Apply Jno. Dring, Billinghay, Lincolnshire.

Bronze Medal awarded for Straw Skeps at the Great Crystal Palace Show, 1875.

Sixteenth Edition. Price One Shilling.

SEVENTY POUNDS A-YEAR:

HOW I MAKE IT BY MY BEES.

By the late J. W. Pagden.

Also, by the same Author, price Sixpence.

Early Artificial Bee-Swarming.

No watching required.

Apply to Mrs. J. W. Pagden, the Chestnuts, Alfriston, Sussex, by whom the same manufacturers of 'Economical Bee Furniture' are employed as formerly. fo. 80.

ARABIS ALPINUS, 2*s.* per 100, or 15*s.* per 1000, free on rail. Apply, Office of Journal, Southall, Middlesex.

VEGETABLE PARCHMENT for Covering Glasses and Jars of Honey, &c., 2*s.* per lb. Sample Sheet, 4*d.* Prices for larger quotations on application. Letters to Editor.

COMB FOUNDATION.

WILLIAM RAITT offers Finest Impressed Sheets, for next Season, at Reduced Prices. Sheets, 9 ins. deep, for Brood Combs; 5 ins. deep, very thin make, for Supers. Safe arrival guaranteed.

See opinions of the Rev. G. A. Procter, and J. S., in B. B. J. for November and December.

Send stamp for Sample and Price List.

Address— Beecroft, Blairgowrie, N.B.

THE GREAT HAMPSHIRE BEE FARM, near Stockbridge: Its Principles and Method of Working. Also,

THE BEE-KEEPER'S ALMANAC, which contains Prognostications of Weather expected, and What to Do in Bee Management. By P. E. Martin, Master Mariner, Bee Master, Proprietor and Manager of the Bee Farm, Inventor of the 'Sailors' Bee-Hive,' now the 'Standard' Bar-frame Hive for the United Kingdom. Price 6*d.* each, per post 7*d.*

Choice Honey, in 5 lb. Tins, sent, Railway carriage paid, as far as S. W. R. Co. have through rates, on receipt of P.O.O. for 6*s.* 6*d.* payable at Stockbridge.

STOCKS AND SWARMS.

Illustrated Price List Post Free.

The British Bee Journal

AND BEE-KEEPER'S ADVISER.

The British Bee Journal is published monthly, and contains the best practical information for the time being, showing what to do, and when and how to do it.

Subscribers to the Journal are first, second, and third class. First class are those who subscribe 10*s.* 6*d.* per annum, from any date, who are entitled to immediate replies, per post, to their queries, when a stamped directed envelope is sent. Second class are those who subscribe 6*s.* per annum, and whose queries can only be replied to through the columns of the Journal; and Third are Clubs of Cottagers, each consisting of not less than six, to whom the charge will be 4*s.* 6*d.* each Member.

Subscriptions, Correspondence, and Inquiries to be addressed to

C. N. ABBOTT, Bee Master,

School of Apiculture, Fairlawn, Southall, London.

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 71. Vol. VI.] MARCH, 1879. [Published Monthly.]

Editorial, Notices, &c.

MARCH.

Last year at this date we had to report on the special mildness of the weather, which had permitted the growth and flowering of many useful bee-plants, such as wallflowers, crocuses, *Arabis Alpinus*, willows, and others, which were so forward as to warrant the commencement of stimulative feeding for the increase of breeding, and the bottle and artificial-pollen basket were objects of daily attention; but in this year of grace, so cold and miserable has been the weather, that we may truly say that the earth is desolate of beauty, for not a flower of any kind can be found upon it. Yet not altogether desolate of beauty, in another sense, for while we write the earth is covered with a mantle of purest white, and every tree, shrub, and plant is decorated and bending with jewelled wreaths that delight the eye with their grace and splendour, shutting out for the time the dark side of the picture and the unwelcome feeling of regret that so much that is lovely should be so near akin to wretchedness and misery. With the break-up of the long frost which has rendered the winter of 1878–9 famous, we hoped that the weather would improve and give bee-keepers opportunities for examining their stocks, and preparing in some degree for the coming season, but during the whole of the month frost and rain have been the rule, and the exception came this morning (Feb. 21), when in three hours the earth was covered with nearly a foot of snow, the heaviest fall we ever remember to have taken place in England.

Considering the length of time that the bees have been shut up by frost and rain, without the possibility of natural help from a single crocus or aconite blossom, and considering that in the exercise of their instinct many stocks may have been breeding and largely consuming their stores, it cannot be too strongly impressed on bee-keepers that careful supervision is necessary, and its omission precarious. Our observations of last month on the activity of bees during severe weather, such as prevailed during December and January last, have drawn the attention of many expert bee-keepers to the subject, and possibly our suggestion on p. 183, on the 'balance of forces,' may be found true in the main. Dimly we see that it is highly essential that the said balance should be kept true, that conservation of heat with proper ventilation, and a full supply of wholesome food, are at the root of the question, and that hive construction is of vastly greater importance than is generally believed. To our mind, with the experience gained through bees having been kept in improved domiciles, it is possible for them to exist within their own dwellings for many months, and during that time for the whole population to have been renewed by breeding, without the necessity for a cleansing flight, and without a dysenteric stain in the hive, provided the balance of forces be correctly regulated. We cannot help feeling impressed with a conviction that the foregoing is the natural condition of bees during bad weather, and that it is through defects in hive construction, or in bee management, that the 'balance' is destroyed and evil brought about. This is a subject big with interest, and we trust it will have the attention of every advanced bee-keeper. It will be easy, now that the suggestion has been (perhaps crudely) made for those who watch their bees, to bear in mind the proposition, which is to the effect that during their natural confinement, by stress of weather, other conditions being propitious, bees can live and conduct the economy of the hive to any extent without producing fæcal matter.*

WORK FOR THE MONTH.

The weather has kept everything so backward that we can scarcely imagine anything likely to be required that has not been suggested already. It was hoped that by this time active

* This is a new idea, and will doubtless raise much discussion, but we firmly believe it to be consistent with general experiences.—Ed.

operations would be feasible, but except in the lengthening of the days (quickening impulses to bees) apiarian matters are a month late. The only directions, therefore, which we can offer beyond those given last month, are general ones, to take care that stocks are not allowed to die of starvation. Barley-sugar is the best winter food.

ANALYSIS OF HONEY—GLASGOW.

The following is the analysis of three samples of comb-honey, marked respectively:—

'No. 1.—American comb-honey, bought December, 1878.

'No. 2.—Clover honey, collected in Dumfriesshire in July, 1878.

'No. 3.—Heather honey, collected at the Holy Loch, Argyllshire, 1878.

	No. 1. per cent.	No. 2. per cent.	No. 3. per cent.
Dextrose	45·50	39·90	30·50
Lævulose	29·50	32·50	42·00
Cane sugar	—	2·70	—
Mineral matter ..	0·14	0·04	0·50
Wax	3·13	4·02	4·87
Water	19·84	17·40	17·20
Colouring matter ..	1·89	3·44	4·93
	100·00	100·00	100·00

'No. 1.—The American comb-honey contained a syrup, slightly yellow in colour, and a considerable quantity of tolerably large crystals, which, however, did not render the syrup opaque. When cut with the knife, it had a strong tendency to run, and it was very deficient in honey flavour.

'No. 2.—The clover-comb contained a viscid, almost colourless syrup, in which I could not detect any crystals. When cut with a knife, it had only a slight tendency to run, and its honey flavour was very strong.

'No. 3.—The heather-comb was filled with a dark but transparent syrup, which was of such a gummy consistency that, when cut with a knife, it had no tendency to run. There was no appearance of crystals, and the honey flavour was remarkably luscious.

'(Signed) JOHN CLARK, Ph.D., F.C.S.

'*Feb.* 19, 1879.'

[The above reached us on the evening of the 24th, almost too late for publication; but, being of so interesting a character at this particular time, it has been squeezed in. It was first forwarded to R. J. Bennett, Esq., the Hon. Sec. of the Caledonian Association, who caused the analysis to be made; and we are sure that every British bee-keeper will join us in thanking Mr. Bennett for his persistent 'Scotchness' in proving the superlative character of his native honey.—ED. *B. B. J.*]

AMERICAN HONEY, ADULTERATION, GLUCOSE.

British bee-keepers will join us in tending their hearty thanks to Dr. Clark, one of the city analysts of Glasgow, of whom there are three, his colleagues being Dr. Wallace and Mr. Tatlock, who on so important a matter doubtless agree with him, for the trouble he has taken to enlighten the whole fraternity of bee-keepers on the question of adulteration of honey. Replying to 'E. R. N.,' whose query in reference to the analysis of the condemned American honey appeared on page 196 of the present volume of the *B. B. J.*, Dr. Clark was good enough to write and say, 'I think it will be sufficient to state that the glucose, in the American honey referred to, contained a considerable quantity of dextrine, which proves that it was derived from starch. Dextrine is not a product of cane sugar, and there is no difficulty in distinguishing honey, however old, from glucose containing dextrine by means of the polariscope along with other tests.—JOHN CLARK.'

Now, having had the pleasure of hearing Dr. Redwood's (the London analyst) remarks on the American honey submitted to him for analysis, we felt, interesting though they were, that there was an uncertainty in his manner of dealing with the subject, which had no savour of 'condemnation' in it, and, knowing that the Glasgow analysts had given forth no such wavering note, we took the liberty of asking Dr. Clark, on whose evidence American honey had been condemned in 1877, a few questions, pressing the matter a little further than did 'E. R. N.' in his note on page 196. 'E. R. N.' asked why the adulterant glucose was determined as a product from starch, and not from *cane* sugar? and the answer was courteously forwarded to us, as above, by Dr. Clark; but Dr. Redwood, when at the Bee-keepers' meeting, admitted a far more serious element of doubt into the question by broadly stating that honey is sugar consisting of two or three varieties of sugar that are obtainable from different natural sources; further that one of these natural sugars is glucose, or the sugar of the grape, '*but it was a kind of sugar that could be artificially produced so as to be chemically identical with that which existed in the juice of the grape!*' 'Chemically identical!' thought we; then how could a conviction possibly be obtained when taking Dr. Redwood's other assertion into consideration, flavour was the only physical difference between honey so constituted? Accordingly we addressed a note to Dr. Clark, asking, amongst other things, if he would kindly state his opinion on the chemical properties of glucose secreted naturally as grape sugar, and that obtained artificially from starch; and he has kindly done so in the following letter, which is doubly valuable as appearing with the report of the British Bee-keepers' Association Meeting and Dr. Redwood's guarded

observations. Dr. Clark says (Feb. 20th, 1879),—

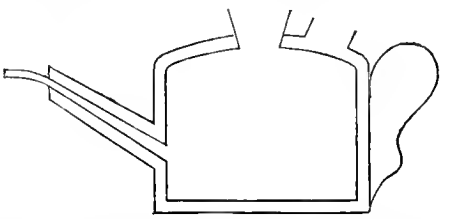
In replying to your favour of the 16th inst. allow me to say a few words about the term 'Glucose.'

The term 'Glucose' is generic, and often applied indiscriminately to designate either a particular sugar belonging to the glucose group or a mixture of sugars belonging to the glucose group. Of this group of sugars the two most important members are (1) Dextrose, called also Grape Sugar or Dextroglucose, a sugar which is readily crystallizable, and (2) Lævulose or Lævo-glucose, a sugar which does not crystallize. These two species of glucose are easily distinguished by their optical properties. With these observations I will now proceed to answer your question as to the difference between glucose naturally secreted and the glucose made artificially from starch. The naturally secreted glucose, which is found in flowers and honey, consists of a mixture in nearly equal proportions of dextrose (grape sugar) and lævulose, whereas the glucose made artificially from starch never contains any lævulose, but either consists entirely of dextrose (grape sugar), or, as is usually the case, it is a mixture of dextrose and dextrine, the dextrine being an intermediate product between starch and grape sugar, and its presence is due to the imperfect conversion of the starch into grape sugar. These two kinds of glucose—viz., the glucose made from starch and the glucose found in flowers—are easily distinguished by the polariscope; but there are very few chemists in this country who have polariscopes, unless they are connected with sugar refineries. Not only does cane sugar never contain any dextrine, but it cannot be converted into dextrine by any known process. When cane sugar is altered by acids, or by a ferment, it is always converted into a mixture in equal proportions of dextrine and lævulose, and never into dextrine alone.—JOHN CLARK.

From this it would appear that Dr. Redwood is not acquainted with the nature of the polariscope as an aid in detecting spurious glucose or grape sugar; and if so, so much the worse for British bee-keepers.—ED. *B. B. J.*

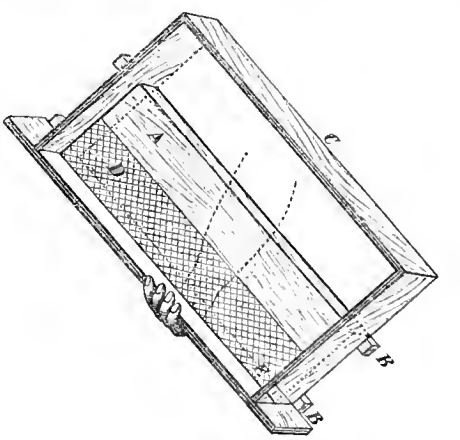
ABBOTT'S WAX SMELTER.

Following upon our description of sectional supers, it appears necessary to offer a few suggestions as to the best means of inserting guides in frames or sections by which the bees may be induced to build their comb in accordance with the wish of the bee-master. Many suggestions have been made, and methods too numerous to mention have been described by which straightness of combs was supposed to be insured; but, after many experiences, it has been concluded that, whether for swarms that have to begin, or stocks that have to continue their labour in supers, there is nothing so helpful to them respectively as comb foundation when it is *properly applied*. Wax lines are ordinarily good *guides* and strong inducements for bees to build correctly; but the simple line, though directing is not of the labour-saving character to the bees, nor is it so absolutely certain of successful fulfilment as is the American comb foundation when 'properly applied.' We have repeated the demand that it should be 'properly applied,' because many are under the impression that if the foundation is stuck in a crack or saw-kurf, the bees will fix it and utilise it, whereas, in fact, it is absolutely necessary that the foundation should be fixed as firmly as if a rock were a necessary footing, and the means of attachment as tenacious as marine glue. Seeing, then, the necessity for an easy method of fixing the sheets, and taking a hint from our Danish friend, Mr. J. G. Wood, we, in the summer of 1874, produced a smelter, of which the accompanying is a modified sketch.



Originally they were made with small tube near the handle for the thumb by pressure to govern the flow of wax (see page 37, vol. ii., *B. B. J.*), but that was found to be unnecessary, and has been discarded. The action of the machine is simple. Wax is put into the inner vessel, hot water into the outer; and, when set upon a hot-plate or over a lamp, the wax speedily melts, and is fit for use.

Now for the method of applying it. If the sheet is to be fixed into the frames of a hive—say a Woodbury—the frames of which are 13 inches long inside, and seven-eighths of an inch wide, we should prepare a piece of board, A, 13 inches long, about 6 inches wide, and a little over three-eighths of an inch thick, and should fasten two strips of lath, 14 inches long, at the back of it close to the top and bottom edges, B B, so that there should be half-inch projections at each corner. Now, if this piece

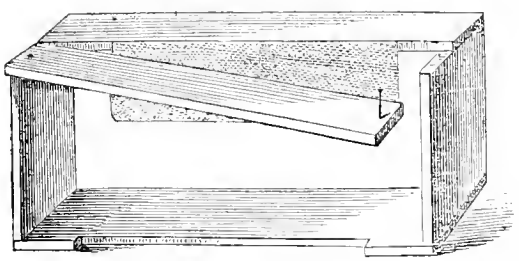


of board be held in the left hand, and a Woodbury frame, C (inverted), be so placed that the frame-ends rest against the projections, while the piece of board lies in the frame itself, but

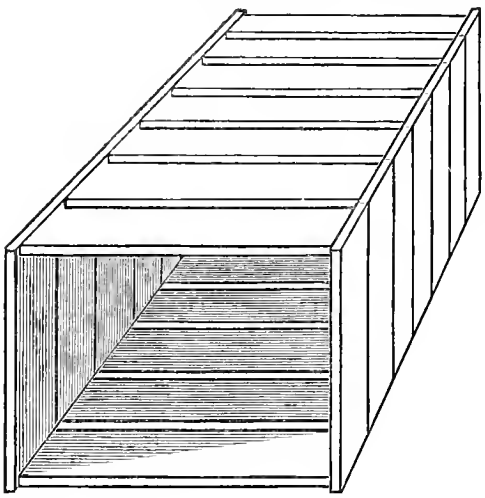
only occupying one half its thickness (or width), the left hand grasping the whole, and holding it as suggested in the engraving, it will be ready for the reception of the wax foundation, D, which is simply laid against the board, A, when it will be manifest that if the nozzle of our smelter be applied at E, the molten wax will run into the angle, and fix the sheet of foundation in the best possible way. Once fixed, it will be easy to reverse the frame, and pour hot wax on the other side of the foundation, and make the fixing doubly sure. By this method the necessity for a saw-groove is dispensed with, as the molten wax forms a solid bed on both sides of the sheet, and gives greatest security. The mode of procedure is the same in all cases; but in sections the board, A, must be thicker, so as to cause the foundation sheets to stand on the centre of the section bars.

AMERICAN SECTIONS.

The large imports of honey (so called) by Messrs. Thurber and Co., of New York, but which was more fittingly described at the late meeting of the British Bee-keepers' Association as a mixture of peppermint-drops and tallow, have, nevertheless, called the attention of the bee-keepers of England to the fact that honey in small sections is in most saleable form, both from its beautiful appearance and the handy shape and size of the packages which the sections form when prepared for the market. As is fairly well known, sectional supers are composed of individual sections of such size and number as may be required to form a suitable receptacle for the storage of honey by a stock of bees, strength in numbers and the nature of the honey-yield being considered. The first sections ever made in this country were of our own invention, and were of the form shown in the engraving. They were brought out in the



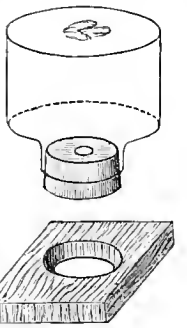
spring of 1875, and were so arranged that the top bar, being in two pieces, could be opened to admit of a piece of impressed wax sheeting, as a guide and aid to the bees. Simultaneously an American bee-keeper hit upon a similar device, and ever since both here and in America they have been the rage; and it has been the constant aim of advanced bee-keepers to promote their use to the utmost, it being considered that by their aid comb-honey can be put up by the bees in exceedingly tasteful and saleable packages, and that in the market they would find a ready sale. The American sections now advocated are of a size that will hold about two pounds of honey, though it is doubtful whether one-pound or even half-pound sections would not find a ready-money market in preference to them. Those, however, in which the honey (?) was sent over by Messrs. Thurber are of very simple make. Two slips of wood, five inches long, and one and three-quarters wide, and a quarter inch thick, form the top and bottom of each section, and two pieces, five and a quarter long, two wide, and an eighth thick, form the sides, thus forming a receptacle five inches wide and four and three-quarters high inside, of just the depth to hold a single piece of comb. Sections of this or any other pattern may be variously treated; they may be packed on both sides of the brood-nest of a hive, underneath it, or on the top of it, or they may be hung in frames and put in the hive, as explained in our *Journal* for October last, page 99; but the simplest way of arranging them is in nests of sixes or sevens, as indicated in the engraving,



by which it will be seen that the difference in the width of the parts causes apertures between each two sections, through which the bees gain entrance. The two end sections should have panes of glass fitted between their sides, so that their progress in filling may be observed, and when completed each section should be fitted with glass in a similar way to protect it from dust and vermin. It will be observed that there are openings along the top of the sections, to permit of storefying, but of course these must be covered until required for use. Slips of glass or wood will answer well for the purpose.

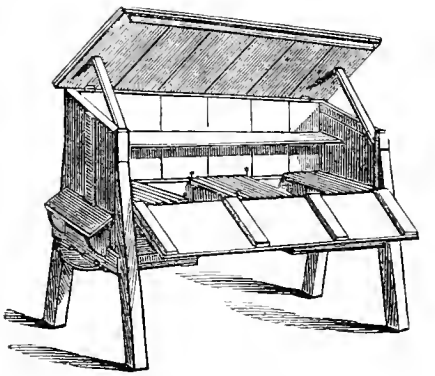
ABBOTT'S SPECIALTY FEEDER.

This is the latest effort to overcome the disagreeables attending the feeding of bees. It is a very strong bottle, or rather a battery cell, admirably suited to the purpose; it is of white glass, three and a half inches high, three and three quarters wide, and nearly an eighth of an inch thick. It weighs nearly a pound—some criterion of its strength—and will hold three-fourths of a pint. Its neck is two and a half inches in diameter, nearly, which will be fitted with a cork plug with flat top, so that when inverted it will stand alone. The plug, however, has a three-quarter-inch hole through it, which is covered with a metallic or vulcanite disc, as may be desired, and which may be perforated to suit all requirements. To render it impossible for strange bees to steal the food from the outside, a stage accompanies the bottle, which, when placed over the hole in the quilt or crown-board, will receive it (the bottle) to its shoulder, so that even ants will not be able to get at its contents. By having two or three plugs with a different number of perforations in each disc, feeding may be regulated to a great nicety, and with the greatest ease and cleanliness.



ABBOTT'S COMPLETE APIARY.

The development of the Combination Hive has aroused in the minds of many bee-keepers a firm faith in the principle of its construction, and already we have been called upon to extend it by the production of a hive which may be used at both ends on the Combination principle, and give space in the centre for a third stock or swarm, thus forming a three-in-one, which, while offering all the conveniences of a so-called 'bee-house,' will be free from its objections, inasmuch as it will be one hive only, inhabited by two or more colonies of bees. The chief advantage in this hive, or, as we call it, 'a complete apiary,' is its extraordinary cheapness as compared with anything of the kind at present in the market, and the facilities it affords for manipulation. Its dimensions for Abbott's Standard frames* are,—height in front 48 inches, at back 42 inches, length 64 inches, depth from front to back 22 inches. It stands on four stout spreading legs, which give great firmness; it has three double-cased floor-boards, easily reversible; it may be used as a twin, or triple hive; it has abundant super space, which is fitted with a shelf to hold all

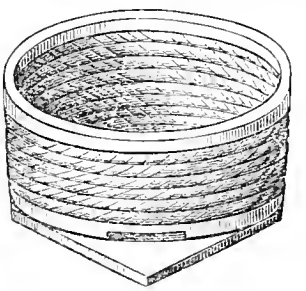


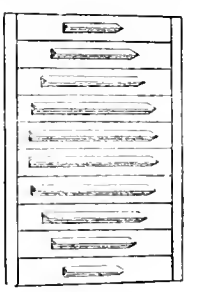
necessary apparatus; has a hinged roof to lift up, and a hinged back to fall outwards and give easy access to all its parts. It will be furnished with thirty frames, four close-fitting wooden dummies, to enable the purchaser to establish three colonies within it, if so inclined, and is provided with quilts to cover all. The 'Apiary' is equal in all its parts and conveniences to three hives of any ordinarily so-called best type, and is more than equivalent to two of Abbott's Combinations.

* The principle of construction can be carried out to suit frames of any size, but where they are smaller than the 'Standard,' the hive will be elongated to give a compensating balance of space.

ABBOTT'S PETTIGREW-STEWARTON HIVE.

This hive is constructed to unite the good qualities of the straw skep with the principles of management by which such large results are obtained under the far-famed Stewarton system, and at the same time render full transition to





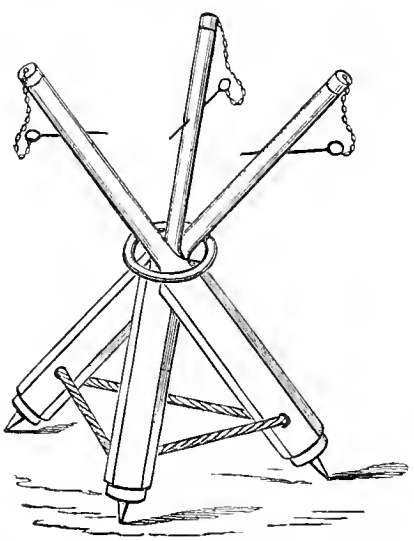
the bar-frame principle easy should it become desirable. It is a straw hive, with a stout rim at the top and at the bottom. It measures 16 inches in diameter at the top, 14 inches at the bottom, inside, and is 11 inches high. Its crown, instead of being composed of straw, is formed of strips of wood of correct width, under each of which is screwed a triangular guide, which may be fitted with comb foundation or simply coated with wax. The strips are of equal length and overhang the hive, forming a

square surface on which may be placed supers of any kind, and the whole is surmounted by a simple roof to keep all dry and comfortable.

The advantages of such a hive over the ordinary skep are self-apparent. Being of a tapering shape, the combs may be lifted out by simply separating their adhesions to the hive's sides, and the top laths can then be removed, and the combs (attached to their triangular guides) fixed by screws into bar-frames without tapes or strings, which greatly annoy bees. At breaking-up time the honey can be removed, and the brood combs all returned to the bees to add strength to their numbers and save the labour of excessive comb-building, so injurious in autumn. Admission is given to the supers between two pairs of the combs by removing portions of the top laths, and feeding is performed by the same means. The hive may be storified *à la* Stewarton, to any extent with Lee's Crystal Palace supers, fitted with Stewarton slides, or nadired *à la* Pettigrew, if desired. It will be fitted as described, with floor-boards, ventilating wooden crown, zinc adapting-boards, a pair of Lee's supers, and a roof of sufficient depth to cover them and keep all dry.

ABBOTT'S DRIVER'S ASSISTANT.

This invention consists of three turned poles, with brass ferrules on either end to prevent splitting, a spike in the bottom of each to prevent slipping, and a cord running through each, near the lower ferrule, to prevent undue



extension. They are held together in the centre by an iron ring, and when 'set' form a tripod, in which a skep can be set as comfortably as a bird's nest in a forked branch of a tree. Near the top of each pole a hole is pierced, through which a sharp iron pin or skewer is thrust into the skep, which fixes it securely and holds it while the driving takes place, after which the skewers are sheathed in the top end of the poles. The chief advantages of this, over a pail, bucket, or tub, as an aid to driving bees, are its perfect firmness, as the skep remains in whatever position it is placed, and the facility it affords for enabling the operator to drum the inverted crown of the hive or apply smoke through the feed-hole when in that position. This was so highly approved when shown last season that it was awarded a Silver Medal at South Kensington, First Prize at Westbury-on-Trym, and First Prize at Exeter.

ANNUAL GENERAL MEETING OF THE BRITISH BEE-KEEPERS' ASSOCIATION.

The Annual General Meeting of this Association was held in the Board-room of the National Chamber of Trade, 446 Strand, on Wednesday, February 12th, 1879. There was a large gathering of the members of the Association, among whom we noticed the Revs. E. Bartrum, A. Corbett, F. G. Jenyns, G. Raynor, F. T. Scott, A. Welsh; Messrs. C. N. Abbott, O. J. Baldwin, F. Cheshire, T. W. Cowan, C. E. Fletcher, F. Gaskell, W. O'B. Glennie (Treasurer), R. R. Godfrey, F. Harrison, J. M. Hooker, J. Hunter, J. P. Jackson, F. H. Lemare, J. E. Littleboy, F. Lyon, W. Martin, A. Neighbour, P. H. Phillips, — Sapsford, G. Walker, &c. The Right Rev. Bishop Tozer was voted to the chair until the arrival of the President, the Baroness Burdett-Coutts.

The Chairman opened the proceedings by moving that the balance-sheet for the year 1878 be received and adopted with a vote of thanks to the auditor, Mr. Kirchner. This was seconded by Mr. Walker and carried. The balance-sheet showed the total amount of revenue for the past year to have been 282*l.* 8*s.* 4½*d.*, and the cash balance in hand to be 63*l.* 6*s.* 7½*d.* The following were the office-bearers elected for the present year:—*President:* Baroness Burdett-Coutts. *Committee:* C. N. Abbott, Esq.; Rev. E. Bartrum; F. Cheshire, Esq.; T. W. Cowan, Esq.; R. R. Godfrey, Esq.; J. M. Hooker, Esq.; J. Hunter, Esq.; J. P. Jackson, Esq.; Rev. G. Raynor. *Treasurer:* W. O'B. Glennie, Esq. *Hon. Secretary:* Rev. H. R. Peel. The question of the appointment of Vice-Presidents was postponed, and left for the Committee to consider and report to a future general meeting of the Association.

Rev. E. Bartrum then proposed a vote of thanks to the Hon. Secretary, Rev. H. R. Peel. He had guided the Association from very tempestuous weather into smooth waters, and had gathered round him men determined to labour with him.

Mr. Hunter seconded this. In his opinion the energy of Mr. Peel had thrown into the Association could not be surpassed.

The Chairman agreed that not one word too much had been said in praise of the Secretary. He proposed that the vote should include all the officers as intended by the agenda. Votes of thanks to all the officers were, however, separately proposed and carried.

The Rev. H. R. Peel briefly responded acknowledging the manner in which his hands had been strengthened by the co-operation of the committee. They worked together with the greatest possible harmony and unity. He then proceeded to explain the position of the Association

in regard to its proposed representation at the forthcoming Royal Agricultural Show at Kilburn. He had called on the Secretary of the Royal Agricultural Society, and found the Bee-keepers' Association had no prospect of obtaining pecuniary assistance, either from the Royal Agricultural Society, which was about to hold its meeting at Kilburn, or from the Mansion House Committee, and he found the first proof of the Prize Sheet was in the Secretary's hand: he had therefore taken upon himself to offer four prizes for competition (for hives, bees, and honey) at the coming Agricultural Exhibition. He proposed that the competition should be international—open to foreign as well as to English bee-keepers. He offered those prizes on his own responsibility, subject to the approval of the Association. He hoped that their entering the lists at Kilburn would lead to the cultivation of bees taking rank amongst recognised British industries. He expected that the results would be something like those which followed the bee show at the Paris Exhibition. The prizes would amount to 24*l.*, divided as follows:—

'For the best Observatory hive, stocked with bees and their queen, all combs to be visible on both sides. First prize, 3*l.*; second, 2*l.*; third, 1*l.*

'For the best hive, on the moveable comb principle, with covering and stand. First prize, 3*l.*; second, 2*l.*; third, 1*l.*

'For the best exhibition of pure honey in sectional supers—each section to be separable, and not more than 3 lbs. in weight, the total weight of each entry not to be less than 12 lbs. The honey to be submitted to analysis, if required by the judges or stewards. First prize, 3*l.*; second, 2*l.*; third 1*l.*

'For the competitor who shall in the neatest, quickest, and most complete manner drive out the bees from a straw skep, capture and exhibit the queen, and transfer both combs and bees into a hive on the moveable comb principle. Competitors to provide their own bees and hives. No veils or gloves to be worn. First prize, 3*l.*; second, 2*l.*; third, 1*l.*

'In each of the Classes 374, 375, and 376, a hive of British manufacture, with cover and stand complete, on the moveable comb principle, will be presented to the foreign competitor to whom the judges shall award the highest honours.'

He had guaranteed those prizes on his own responsibility, and it was now for the Association to adopt them to relieve him of the responsibility, or to allow him to take the responsibility upon himself, which he was quite willing to do. It was a great advantage to be represented at the Royal Society's Show. It would show foreigners what British bee-keepers could do, and perhaps enable British bee-keepers to learn something from foreigners.

Mr. Hunter said the cost of the prizes was but a very small proportion of the expense which would be required. There would be the attendants, manipulators, &c. The 24*l.* given in prizes might only represent one third or one fourth.

Rev. H. R. Peel replied that the outlay required on the part of the Association would not be nearly so high as Mr. Hunter put it.

Rev. E. Bartrum moved that the action of the Hon. Sec. be approved. He felt it was desirable that the Society should be represented at Kilburn, and it ought to be ashamed of itself if it would not take the risk involved.

Mr. Cowan seconded.

The Chairman concurred in the proposition made by Mr. Bartrum, and it was accordingly put and carried unanimously.

An amendment more clearly stating the meaning of Rule 6 suggested by Mr. Hunter was adopted, and the

The Secretary, in introducing the subject of the Formation of County Associations, read the eighth original rule, as made when the Association was first formed in 1874, as bearing upon the subjects to be brought forward by himself and the other gentlemen who were to succeed him, as follows:—'That as soon, and so far as the funds of the Association will permit, the Committee will endeavour to carry out the objects of the Association, by means of lectures, meetings, the circulation of suitable books, certificating and sending out experts as qualified teachers and examiners of apiaries, exhibition and circulation of hives, apiarian apparatus, &c., to spread a knowledge of all improvements and best possible methods of bee-keeping, and of the most profitable use and disposal of bee produce: also to establish a model apiary, and an Apiarian Museum and Honey Market, assist in the formation of provincial clubs affiliated with the Association, and generally to do all in their power for the advancement of apiarian science.' He then explained the proposed promotion of County Bee-keepers' Associations on the model of those already existing in the counties of Lincoln, Devon, Dorset, Salop, and Herts, in connexion with the British Bee-keepers' Association. He contended that there was a certain patriotism about a County Association which could not be found in a merely Local Society. It might be thought by some that they would divert funds from the other associations, but as far as his experience went that was not the case. He found that those who were members of the County Associations were the best friends of the British Bee-keepers' Association. It seemed to him that the Central Association might assist County Associations most materially. They might, with their experience, help County Associations in course of formation. He had been in communication with the secretaries of all the existing local associations, of which there were at present five, viz. the Devonshire and Exeter, the Dorsetshire, the Lincolnshire, the Shropshire, and the Hertfordshire Bee-keepers' Associations. He had written to the secretaries of all those, and invited them to attend a preliminary meeting there that morning that they might talk the matter over among themselves. He thought there was no doubt that each County Association would be willing to pay an affiliation fee of a guinea to the funds of the British Bee-keepers' Association if they expected proportionate benefits in return. It had been the custom of the British Bee-keepers' Association to offer medals for competition at shows of provincial Societies: so that he presumed the Association would not refuse to do the same for a County Association. He thought they might also lend them their tent, the County Association undertaking to defray the cost of carriage, and other expenses. The Central Association should keep in hand a set of diagrams to illustrate the working of the bees, and lend them out when required. There was another privilege which he thought they should have, viz., that they should have some sort of seat or position on the council of the parent Association, that would give them an opportunity of explaining to the Central Association what they most required in their respective counties. Having a right to come, whether they exercised it or not, they would feel they were really associated with the Central Association. There was no question of the possibility of forming those associations if the British Bee-keepers' Association thought it desirable to promote their formation. Five had already been formed, and he had great hopes himself that three more would appear in the course of the present year. He hoped their members to-day would by their votes affirm that they wished to meet those County Associations which were sure to spring up somehow; that they would receive them as allies, and not look upon them as rivals. He believed in ten years there would scarcely be a county without its Bee-keepers' Association. He therefore begged to move that the British Bee-keepers' Association sanction and undertake to promote the formation of County Bee Associations.

Mr. Lemare, of Guildford, inquired what would be the

expense of the manipulator attending shows, and Mr. Peel replied that it would be 10s. 6d. a-day, and his expenses.

Rev. F. T. Scott seconded: as a Kentish man he would be very glad to promote the formation of an Association in his county. He had always thought it very desirable that Bee Associations should be connected with agriculture.

The Chairman said it seemed to him the very end and object of a Central Association was to promote the formation of kindred Societies. As he understood the proposal, it really meant that they should extend the right hand of fellowship to County Associations.

The proposal was then put and carried unanimously.

Mr. Godfrey, of Grantham, then read a paper on the admission of representatives from such County Associations to Quarterly Meetings of the Committee of the British Bee-keepers' Association, with the view to promoting united action between the County Associations themselves, as well as co-operation with the Central Association. He contended that by inviting every County Association of Bee-keepers to affiliate itself with the British, and to send a representative to its Council, they would open a direct means of communication between the Central Society and County Associations, and should also devise a course for unity of action, with every probability of securing co-operation. Admitting it to be desirable a move should be made, now what were the inducements they might offer to the County Associations that should be acceptable to them, and which it might reasonably be hoped would be a means of effecting this great union of purpose? He would suggest what he thought might be fairly entertained in respect to terms, and what should be the position of a county representative on the Council of the British Bee-keepers' Association; also, what would be some of the many benefits such County Associations would derive. He proposed to deal with them as of two classes: those who affiliated themselves and paid no fee, and those who affiliated themselves and paid a fee. First, then, those County Associations who though affiliated paid no fee should have sent to them the usual circulars relating to the working of the Association, notices of the quarterly committee-meetings, and other notices of subjects which might from time to time be brought forward for discussion at those meetings, and be allowed the privilege of taking part in any discussion with the same freedom as that accorded to members of the Committee. They should also be allowed, on first submitting it to the hon. secretary, to introduce through their recognised representative subjects for discussion and to bring under the notice of the committee any matter connected with the doings of their respective Associations. With regard to those affiliated Associations who contributed, say a guinea per annum, to the funds of the British Bee-keepers' Association, he thought they should be allowed, in addition to the foregoing, the free use of the Bee Tent for manipulations at their annual exhibitions, and the assistance of the Association's 'Bee Man,' if desired, on their guaranteeing the expenses of transit and railway fare to and fro; the free use of diagrams for lectures; a medal prize for hives, which should be open; and a money prize, with certificate, for honey, especially for cottagers who were members of their respective Associations. He would here add that representatives should *not* be entitled to vote on any questions at the quarterly meetings of the Committee; but they should be privileged to vote at all general or special meetings of the Association, as also for the election of Council, in the same way as regular members.

The Chairman suggested that the paper just read should be formulated into a proposal to refer the matter to the Committee.

Mr. Godfrey accordingly moved, and Rev. A. Corbett seconded, that the matter be referred to the Committee, and this was carried.

At this stage of the proceedings the Baroness Burdett-Coutts, the President, who had entered during the progress of the meeting, arose, and in retiring thanked the Association for her re-election. She was particularly gratified to find that they had entered upon so important a line of conduct. She took a sincere and deep interest in the Society, and hoped she would be able to see a representative from every county when next she would have the pleasure of meeting them.

A paper was next read by Mr. J. P. Jackson, of Bull's Mill Apiary, Hertford, on the establishment of a honey market in London, under the management of the British Bee-keepers' Association. He said,—'The establishment of an Association Honey Depôt in London—or, in other words, the formation of a market for the honey, the production of which has been so greatly stimulated and increased by the efforts of our Association—is a subject that demands our earnest and immediate attention. The cottagers and others who have benefited most by the introduction of approved appliances and a rational system of bee culture are in a great difficulty, and are appealing to us for assistance; for they cannot find a sale for their honey, and if we do not help them they must renounce the idea of making a profit by their bees. And we have not only to consider the case of the producers, but also that of the consumers; for it admits of no question that it is of the greatest importance that the British public should learn the value of pure native honey, and thus be able to estimate at its real value the foreign article which is so extensively imported into this country, and which, if it does not consist in great measure of dextrine syrup, is probably the contents of Chilian hives pounded and strained. The interests of our Association are thus gravely concerned, and there is also a further reason why we should bestir ourselves. How can we obtain adherents to our cause—the improvement of the condition of the labouring classes by the introduction of rational bee-keeping—if there be no sale for the honey produced? Since we first associated ourselves together our members have constantly complained that they could find no sale for their honey, and it is most certainly the duty of our Association to take the matter in hand, and make a honey market for them if none at present exists. The following are the results of the inquiries instituted. Our esteemed lady-president, the Baroness Burdett-Coutts, who takes such an interest in the work of the Association, has very kindly placed at our disposal, at a merely nominal rent, very useful premises at the Columbia Market, comprising a shop and extensive dry cellarage. This offer we should by all means take advantage of, and form there our depôts, whither honey may be consigned from the country, and whence it may be delivered at first by a hired conveyance, and in time by a cart of our own, to the various stores and shops purchasing it of us. The shop assigned to us would be one of a number occupied by the Columbia Market Co-operative Society, a philanthropic society instituted by the Baroness; and till our trade assumed some dimensions the business might possibly be conducted by the society with the occasional assistance of our manipulator, Baldwin. We ought to buy honey from members only, and require them to guarantee its purity on a proper form. The carriage and risk would be borne by the sender. Members would not be allowed to send up honey without first writing to the Association, and submitting a sample of it. Applications would be entertained according to priority and the quality of the honey. The most important point is, how much shall we pay for the honey, and for how much shall we re-sell it to the trade. We ought to give for extracted honey about 7*d.* per lb., and re-sell it to the trade at 9*d.* or 10*d.*; and for sections 11*d.* to 1*s.* per lb., and re-sell it at 1*s.* 2*d.*; and we ought to limit our operations to honey of these two descriptions. It would not do for

us to purchase whole supers, or even frames of honey, as the handling and division of them would cause us so much trouble and loss. The prices at which I estimate that the honey should be bought are certainly not high, but producers would no doubt be content with a lower price from us, as we could take their whole crop and pay them cash for it. These rates ought, if possible, not to be exceeded, as retailers should be able to sell at 1*s.* 1*d.* per one-pound jar, and 1*s.* 6*d.* per lb. comb honey, and will hardly push the sale of our articles for less than twenty-five per cent. commission. Then, too, a sufficient margin must be left to cover the expenses of handling the honey, and especially of advertising it. We might in the first place get the shopkeepers in Covent Garden Market to take up [the trade, as from their peculiar position they are able to obtain a large sale for any suitable article that they may present to the public. It seems hardly possible for us to supply the public direct, though then the twenty-five per cent. commission could be shared between the producers and the Association. It is a question how far it would be feasible for us to insist on having all extracted honey supplied in glass jars of our particular pattern, such as last year's prize vase, which you see before you. It would cost the producer a trifle more for carriage, but it would save us the trouble and expense of transferring to our own jars. At our annual show we might encourage the use of similar vases and sections by giving honey thus stored special advantages in competition. The section-crate, as used in America, is also worthy of adoption by us. All honey sold should bear the name or initials of the producer, and in addition the label of the Association as a further guarantee of its purity. These details are, of course, only offered as suggestions, and they are stated briefly as several of the questions raised may require some discussion. The great thing, however, is to make a start, and to do so at once; for while, I might almost say, we are discussing the question, hundreds of tons of American honey, in crates similar to those you see on the table, and which is offered to our grocers, extracted at 6*d.* per lb., and in the comb at 10*d.* to 1*s.* 2*d.* per lb., are being poured into the country; and before long, perhaps, all sale for our pure honey may be gone. We ought to begin on a small scale, and feeling our way accumulate the experience and the custom which will render attempts on a larger scale possible, and thus by removing the great obstacle to its success enable us to attain the end we have in view—viz., the introduction amongst our labouring classes of a rational and withal profitable system of bee-culture.

Mr. Fletcher seconded the proposal embodied in the paper. He thought the Association should have a place of central sale in London, and the plan that Mr. Jackson had proposed sounded upon the face of it feasible, so far as he could judge. Out of curiosity, he had purchased a specimen of the American honey, and if the public liked it no better than he did, they had not much to fear from its competition. Its flavour reminded him of peppermint-drops mixed with tallow. There was no doubt the want did exist of a ready means of bringing the produce of cottagers and members in the country to the consumer in London and other large towns, and for that reason he had much pleasure in seconding the scheme proposed.

Mr. Hunter was astonished at the statement that there was no market for honey in London, in the face of the tons brought into the market from America and sold. Our cottagers did not produce their honey in a saleable condition. He never had any difficulty in selling any honey he produced. In Belgium honey was sold in the market like fruit. Even in Devonshire it was sold in the open market. The truth was, that not one-tenth, or one-twentieth, produced by English cottagers, was fit to put before the public. Put up in all kinds of articles, from broken jars to gallipots, it could not be offered to a customer in any respectable shop. If such clean-looking supers as the American were used, a ready market would be found. If the committee carried out the idea, they would reap unthought-of odium over the matter. It was not for the British Bee-keepers' Association to turn shopkeepers, but to teach the English cottagers how to put up their honey in a saleable condition. Let the cottagers of England first raise their honey in a respectable manner, and then they would find their market, without even coming to London.

Mr. Lyon urged that the Association should not send out honey in bulk, but in small jars or supers; and to encourage the production of small supers suitable for the purpose, he suggested that a prize should be offered for small supers, to be sold at about one shilling. As regarded those who were to sell it, he thought the fruiterers would be better than the grocers, because the grocers were, one and all, selling the foreign trash. He would suggest that the Association should receive from members only any honey they had in small supers, if possible; if not, in bulk, and pack it in small jars. Every jar should be labelled with the Association label. Then came the difficulty of the colour of the honey coming from different districts, and as to whether it would be necessary for the Association to bulk the honey. The Association brand should be put upon each jar, so as to enable it to fetch the higher price.

Mr. Littleboy said the further Mr. Jackson went the more he was astonished. It did seem incredible that a philanthropic Association like theirs should go into the retail trade. If they attempted to sell the honey made by the Association at the same price, simply because they were members of their Association; if they attempted it all at the same price, they would find it would be like the unskilled and skilled artisans. It would not work. They might take it as certain that in all districts there was a good demand for good honey. If really good honey were made, it would find a ready sale at the cottage door; and where cottagers could sell it close by, they would get a much better price than by sending it to London. He should be sorry to see the Association enter into the honey trade, but they might make arrangements with the people in Covent Garden to recommend certain producers.

The Secretary said he would vote for the market for the reason that he got letters from gentlemen in all parts of the country, urging the Association to direct its efforts towards the establishment of a market. He thought it was not well to condemn the American importations without knowing whether the honey was adulterated or not. He then introduced Professor Redwood, who said he came there by the request of Mr. Peel to say a few words upon the subject of American honey. But certainly it was not much that he could say in furtherance of their object. A sample of American honey was submitted to him, with a request that he would make an examination of it, and offer an opinion as to whether he considered it was genuine honey, or whether there was any evidence that would justify a general opinion that the bees who filled the honeycomb with that honey, did not obtain it from the ordinary sources, but that they were practically supplied with sugar. The subject appeared to him to be a very interesting one. He had previously heard from time to time of statements to the effect that large quantities of honey were being imported into this country from California and other parts of America, and that there was a suspicion that such honey was largely adulterated. Some of his professional brethren who were engaged like himself, had had occasion to examine samples of honey, and a difference of opinion appeared to have existed upon the subject. He had previously examined some himself, and came to the conclusion that he had not sufficient evidence of its being adulterated. But this he had observed in those specimens, that although they appeared to answer to the general

chemical tests, nevertheless they were deficient, and some of them to a very great extent, in that peculiar flavour characterising honey, and which principally distinguished honey from other forms of sugar. And in setting about the investigation of the sample of honey deposited in the comb, which was brought to him by Mr. Peel, he was not up to that period at all aware that any method existed by which such could be adulterated; it was quite unknown to him that the bees could be educated to take their honey from some neighbouring deposit of sugar, and to work it up in the form of the honeycomb. When he came to make an examination of the sample it was quite evident that it was wholly different to any sample of English honey. The general conclusion he had come to was that in the ordinary sense of the word it was not honey, because it was devoid of that flavour peculiar to honey. But when he went on with the examination he must confess that up to the present time he had not been able to get any chemical distinguishing character by which he should have been enabled to say that that sample was not honey, whereas the other ordinary English honey was honey. And the only difference that he was able to indicate up to the present was as to the physical difference which any one would be capable of appreciating. Perhaps he might, in conclusion, just state that really when we came to examine an article, such as honey, chemically, all we could say of it was that it was sugar; that it consisted of two or three varieties of sugar that were obtained from natural sources. Thus we should represent our best English honey as consisting principally of grape sugar or glucose; and that was a sugar which was not only found in the juice of the grapes, but it was a kind of sugar that could be artificially produced so as to be chemically identical with that which existed in the juice of the grape, and it was largely manufactured in America from the starch of the Indian corn. In addition to that there was another variety of sugar. Grape-sugar or glucose was crystallizable, but with very great difficulty. When honey was first taken out of the comb, it was transparent, but it became opaque after being out some time. Still these sugars would lack one character of honey, the flavour, which was taken from the flowers from which the bees collected it.

At the close of Professor Redwood's statement, the discussion on Mr. Jackson's paper was resumed by

Rev. Mr. Bartrum, who suggested the appointment of a London agent. They heard from all quarters that when there was a large quantity of honey got in there was great difficulty in selling it. He was persuaded that if Mr. Littleboy were aware of that fact he would acknowledge the difficulty. They might appoint some one who would undertake on a commission to sell for the members of the Association, the Association guaranteeing that the honey should be pure. Unless they did something to push the business they would not succeed. To store up honey in the Columbia Market without pushing the sale would be a great mistake. The subject, however, was so wide a one that it might be referred to the Committee for further consideration.

Mr. Lemare found grocers sold Crosse and Blackwell's preserved fruits, &c., in jars with a pretty label, and the grocers told him that they would sell his honey if he would supply it with a pretty label and in a small jar. If such a plan were adopted he believed no producer would find it difficult to dispose of his honey.

The Chairman here suggested that the discussion had arrived at a point to bring matters to a vote if some gentleman would make a proposition, and the Secretary proceeded to draft a resolution to be put before the meeting.

Mr. Cowan thought the principal reason why cottagers could not sell their honey was because they put too high a price upon it. He strongly objected to going into the trade as an Association.

Rev. F. T. Scott agreed that the Association should endeavour to facilitate the sale of honey.

The Secretary then moved the following resolution:—'That the British Bee-keepers' Committee be requested to consider the best means of facilitating the sale of honey belonging to the members, and to take such measures thereupon as seems advisable.'

Rev. E. Bartrum seconded this, and it was carried.

Mr. C. N. Abbott, of Fairlawn, Southall (Editor of the *British Bee Journal*) next proposed the holding of quarterly meetings or soirees at which papers might be read on subjects connected with bee-keeping by the members of the Association and discussions held thereon, such proceedings to be printed and circulated amongst the members. He thought the proposal would commend itself to the common sense of every one present as being most desirable, if arrangements could be made for carrying it out. He did not bring it forward as a new proposal; for already on the minutes there could be found a resolution unanimously approving a similar proposition, which he (Mr. Abbott) made at a general meeting after one of the shows held at the Crystal Palace; but excepting at one meeting held at Burlington House, which was well attended, nothing had been done, the difficulty of finding accommodation, and perhaps the slenderness of the Association's funds at the time, rendering the proposal inoperative. Now, however, he hoped and believed that there were no difficulties in the way, and he felt that it was only necessary to bring the matter forward to ensure its being recommended to the committee as one of the best means of affording instruction and entertainment to the members generally. Not only should he like to hear papers read and discussions ensue thereon, but he hoped that when any one was so fortunate as to be the possessor of a new idea which would apparently lead to the improvement of any branch of bee culture he would bring it before the meeting, and not only get it recognised as his own idea, but that he should take the sense of the meeting, and be encouraged, or otherwise. There were many other ways in which such quarterly meetings of members might be utilised; but he felt sure the development of the matter might safely be left with the committee, and having moved the resolution he was content to leave it with the meeting.

Mr. Littleboy seconded the proposal, which was carried unanimously.

A hearty vote of thanks to the Right Rev. Chairman for presiding terminated the proceedings.

EAST OF SCOTLAND BEE-KEEPERS' SOCIETY.

The annual business meeting of this Society was held in Lamb's Hotel, Dundee, on the 25th January; forty members present, the President in the chair.

The minutes of general and committee meetings since 7th September were read and approved of.

The Secretary presented the Committee's Report for the year, which was adopted as the Society's annual report to be printed and circulated among the members. From this report it appears that the Society has had gratifying success during 1878. The members number 150. The funds show a balance of 13*l.* 2*s.* 6*d.* in the hands of the treasurer, both the income and the expenditure being considerably larger than in former years. The shows held at Dundee, Blairgowrie, Arbroath, Banchory, and Meigle, had all been successful. At the Dundee Show alone 2009 lbs. of comb honey, and over 200 lbs. of extracted, were entered in the various classes, besides about 800 lbs. in the sale class. The splendid form in which most of the honey was exhibited, and the ready sale it met with, were gratifying evidences of the good work done by the Society. The Committee had felt themselves warranted in making preparations for the operations of another year, and had already prepared a

schedule of prizes for Dundee show, and awarded 5*l.* towards the expenses of local shows. They had succeeded in prevailing on the Secretary, Mr. Raitt, to remain at his post for another year, and proposed to pay him a salary in future to compensate to some extent for the large amount of time and trouble he gives to the work of the Society.

The Treasurer, Mr. J. D. Ker, then gave a detailed account of the income and expenditure, showing the balance as above.

The meeting then proceeded to the election of office-bearers for 1879. The result was as follows:—

President, Mr. H. Lorimer, Coldside, Dundee; Vice-Presidents, Mr. J. Stewart, Arbroath; R. McGregor, Inchmarlo, Banchory; J. Jack, Newtyle; Secretary, Mr. Wm. Raitt, Beecroft, Blairgowrie; Treasurer, Mr. J. D. Ker, Douglasfield, Dundee; Members of Committee, Messrs. James Alexander, Morgan Hospital, Dundee; James Lorimer, Monifieth, Dundee; Robert Steele, Fowlis, Dundee; D. Ramsay, Baldovie, Dundee; D. P. Scott, Broughty Ferry, Dundee; W. Doig, Rossie Priory, Inchture; J. Glen, Arbroath; John Davie, Waulkmills, Arbroath; John Nicoll, Cemetery Lodge, Arbroath; Wm. Page, Falkland, Fife; J. T. Kinnear, Newport, Fife; A. Mason, Springfield, Fife; W. W. Young, Perth; Charles Forbes, Belmont Lodge, Meigle; Wm. Arthur, Schoolhouse, Balgavies; Ch. Carnegie, Marykirk, Montrose; John Macdonald, Kinnettles, Forfar; J. P. Bisset, the Parsonage, Banchory; and Jas. Rogerson, delegate from Blairgowrie branch.

Presentation.—At the close of the regular business the President, in the name of the Society, presented the Secretary, Mr. Wm. Raitt, with a purse of sovereigns, as a recognition on the part of the members of his services for the past three years. In doing so Mr. Lorimer referred to the origin of the Society, and traced its history and success, attributing the same in great measure to the labours of the Secretary. He felt satisfied that the Society was in the foremost rank, and, as an evidence of this, related a conversation he had lately with the agent of Thurber and Co., New York, who had come to Dundee to try and sell some of that famous 80 tons. After examining the stock of beautiful home-produced sections in the windows of Mr. Harley, Reform St., he asked the Yankee his opinion of it as compared with other places. 'Dundee,' said he, 'is quite equal to anything we have in America, and *far ahead* of any town in Britain that I have visited.'

Mr. Raitt duly acknowledged the handsome testimonial placed in his hands, and expressed his pleasure in hearing that his efforts to benefit others had been so thoroughly appreciated. He had been sorry to think that the pressure of work in his new undertaking would interfere with his work for the Society, but he now saw his way to carry on for some time yet, and cordially invited the members to visit his apiary at Beecroft, and learn all they could by actual inspection.

The Society will hold its fourth annual exhibition of bees, honey, and apiarian appliances in conjunction with the Dundee Horticultural Society's Exhibition, to be held in the Drill Hall, Dundee, on the 4th, 5th, and 6th September, 1879. The following is the schedule of prizes:—

1. Best display of honey comb, the produce of one apiary, in sections not over 2 lbs. each, total not to exceed 150 lbs. 1st, 30*s.*; 2nd, 25*s.*; 3rd, 20*s.*

2. Largest and best harvest of super honey, the produce of one hive, in cases not over 5 lbs. each. 1st, 30*s.*; 2nd, 25*s.*; 3rd, 20*s.*

Exhibitors in this Class must be prepared to furnish an account satisfying the Committee of the *bona fide* nature of their exhibits.

3. Best single super in wood, or wood and glass, over 20 lbs. 1st, 20*s.*; 2nd, 15*s.*; 3rd, 10*s.*

4. Best single super in wood, or wood and glass, 10 to 20 lbs. 1st, 15*s.*; 2nd, 10*s.*; 3rd, 5*s.*

5. Best single super in wood, or wood and glass, under 10 lbs. 1st, 15*s.*; 2nd, 10*s.*; 3rd, 5*s.*

6. Best sectional super, over 20 lbs., sections not over 4 lbs. each. 1st, 20*s.* 2nd, 10*s.*; 3rd, 5*s.*

7. Best Sectional super, over 20 lbs., sections not over 2 lbs. each. 1st, 20*s.*; 2nd, 10*s.*; 3rd, 5*s.*

8. Best sectional super, under 20 lbs., sections not over 2 lbs. each. 1st, 15*s.*; 2nd, 10*s.*; 3rd, 5*s.*

9. Best straw super, over 10 lbs. 1st, 15*s.*; 2nd, 10*s.*; 3rd, 5*s.*

10. Best straw super, under 10 lbs. 1st, 10*s.*; 2nd, 7*s.* 6*d.*; 3rd, 5*s.*

11. Best super of heather honey, over 10 lbs. 1st, 15*s.*; 2nd, 10*s.*; 3rd, 5*s.*

12. Best super of heather honey, under 10 lbs. 1st, 10*s.*; 2nd, 7*s.* 6*d.*; 3rd, 5*s.*

13. Prettiest design in honey-comb, worked by the bees. First prize offered by R. Steele, hive-maker, Fowlis,—a honey extractor, value 29*s.*; 2nd, 10*s.*; 3rd, 5*s.*

14. Six lbs. run or extracted fruit-blossom honey, in show glass. 1st, 10*s.*; 2nd, 7*s.* 6*d.*; 3rd, 5*s.*

15. Six lbs. run or extracted clover honey, in show glass. 1st, 10*s.*; 2nd, 7*s.* 6*d.*; 3rd, 5*s.*

16. Six lbs. run or extracted heather honey, in show glass. 1st, 10*s.*; 2nd, 7*s.* 6*d.*; 3rd, 5*s.*

17. Two lbs. wax. 1st, 5*s.*; 2nd, 2*s.* 6*d.*

18. Six sheets impressed comb foundations, open to makers only. 1st, 7*s.* 6*d.*; 2nd, 5*s.*; 3rd, 2*s.* 6*d.*

19. Best and neatest observatory hive, stocked with bees. 1st, 20*s.*; 2nd, 15*s.*; 3rd, 10*s.*

20. Best two nests of humble bees; distinct varieties, under glass. 1st, 10*s.*; 2nd, 5*s.*

21. Best collection of apiarian appliances, no two articles to be of the same kind. 1st, silver medal; 2nd, certificate.

All honey and wax, unless entered for exhibition only, must be the *bona fide* produce of the exhibitor's own apiary, gathered in the natural way during 1879.

For forms of entry and special rules for this department, apply to the Secretary, W. M. Raitt, Beecroft, Blairgowrie.

ARBROATH HORTICULTURAL SOCIETY.

The East of Scotland Bee-keepers' Society offer the following prizes for bees, honey, appliances, &c., in conjunction with the Arbroath Horticultural Society Exhibition to be held within the new Public Hall, Arbroath, on Friday or Saturday, 29th and 30th August, 1879:—

1. Best sectional supers over 20 lbs.—combs separable, and not over 2 lbs. each. 1st, 12*s.*; 2nd, 8*s.*; 3rd, 5*s.*

2. Best sectional super under 20 lbs.—combs separable, and not over 2 lbs. each. 1st, 8*s.*; 2nd, 5*s.*; 3rd, 3*s.*

3. Best single super, in wood or wood and glass, under 20 lbs. 1st, 8*s.*; 2nd, 5*s.*; 3rd, 3*s.*

4. Best super, in straw, under 12 lbs. 1st, 6*s.*; 2nd, 4*s.*; 3rd, 2*s.* 6*d.*

5. Best 6 lbs. run honey, in show glass. 1st, 6*s.*; 2nd, 4*s.*; 3rd, 2*s.* 6*d.*

6. Best 2 lbs. wax. 1st, 3*s.*; 2nd, 1*s.* 6*d.*

7. Best 6 sheets artificial comb foundation, 1st, 3*s.*; 2nd, 1*s.* 6*d.*

8. Best observatory or unicomb hive, to be exhibited stocked with bees. 1st, 10*s.*; 2nd, 5*s.*

9. Best collection of bee appliances, no two articles alike, and each article to be indispensable to a well-managed apiary. 1st, 15*s.* and certificate.

10. Any new invention calculated in the opinion of the judges to advance scientific beekeeping. 1st, 5*s.* and certificate.

NOTE.—Competitors in Nos. 9 and 10 must undertake to supply members of the Society with similar articles at the prices marked on their exhibits.

All honey, unless entered for exhibition only, must be

the *bona fide* produce of the exhibitor's own apiary, gathered in the natural way during 1879. This competition is open to members of Arbroath Horticultural Society and East of Scotland Bee-keepers' Society; and the rules for competition will be the same as those of the East of Scotland Bee-keepers' Society. Intending competitors must fill up the accompanying entry form, and return to the acting secretary, John Stuart, Letham Mill, Arbroath, not later than the 25th day of August, 1879.

COUNTY ASSOCIATION FOR SURREY.

We have the greatest pleasure in announcing that a Bee-keepers' Association is being formed for Surrey under the able guidance of Frederick H. Lemare, Esq., of 4 Sydney Road, Guildford, who has been appointed Hon. Sec., and who will be pleased to receive the names of Surrey bee-keepers and others willing to aid the movement by becoming members, local centres, or donors to the cause. County Associations are rapidly springing up around us, testifying to the interest that is being taken in bee-culture; and in behalf of the bees and cottager owners, we trust that every country village will shortly be pervaded by the gentle influences that everywhere attend the introduction and advocacy of humanity to the honey-bee. The full programme of the Surrey Association will shortly be published.

LONG SUTTON AGRICULTURAL SOCIETY.

At the annual meeting of the members of the above Society, held Feb. 25th, it was unanimously resolved:—

'That the Lincolnshire Beekeepers' Association be invited to hold their annual exhibition for the coming season in conjunction with the annual show of the Long Sutton Agricultural Society, on Wednesday and Thursday, Sept. 17 and 18, 1879.'

CORRECTION.—On page 187, line 20, *for* stock, *read* stick.

Correspondence.

ARTIFICIAL POLLEN—BEES AND LEMONADE.

The mention of 'Artificial Pollen' in your article on 'Work for the Month' in this month's *Journal* reminds me of a circumstance connected therewith, which I feel it my duty to offer to the bee public through your valuable *Journal*. Some two years ago I tried to get my bees to take pea-flour—some of our friend Mr. Symington's, as you recommended, sprinkled on new pine shavings in a warmed old hive. For three or four days they would not look at it, or go near it—if there was a crocus open—though, it was soon broken down by the assault of bees upon it. I took the hint; with a quill pen I dropped some pea-flour into each crocus, about 150 being open, and in half an hour after every crocus had from three to six bees in it struggling for the *pollen*. In ten minutes from that time they had besieged the hive with the shavings and the pea-flour, and they continued to empty it every day afterwards. Since then I have had no trouble, I simply fill about six or eight crocuses; that is sufficient. Now for something less satisfactory. Honey was scarce in this neighbourhood last summer, and my bees—all strong stocks, with magnificent Ligurian queens—found a lemonade manufactory, and literally took possession of it for the summer; for every ten that went I do not think one returned, for they were taken out by spadefuls from the copper where the syrup was boiled, having been drowned in their thievish action; hence my only alternative is to get rid of them. They are all in your best hives, some very strong, some fairly so. Can you find me a customer? They are all well and thriving at this present time. I would hire a stand in the neighbourhood, but I hope to leave here for a warmer climate some time during this present year. I should be very much obliged if some of your ingenious readers would suggest to me the best means of taking Ligurian queens to New Zealand, where I hear they have not yet been imported. The voyage is ninety days on the average.—J. IRVING, M.D., *Newark-on-Trent, Feb.* 6, 1879.

BEE-KEEPING IN IRELAND—SULPHUR AS A FUMIGANT.

The following may be useful to your readers, as your *Journal* is a valuable interchange of opinion and knowledge on bee-culture. I commenced reading bee-books some time ago, and got greatly interested in bee matters, and resolved to make a few experiments through the agency of the 'Old School' and the sulphur match. I had two hives standing within eighteen inches of each other (maiden swarms), and I went as usual to get the honey fit for sale that I might purchase hay for my cow (as I'm a cottager). After night I made the fatal pit, but this time made an under-ground sewer, and lighted the match some three yards from the pit, this had the effect of only stupifying the bees and not killing them outright. I then had my two hives of clean honey and all my bees in the pit (silent). I placed a wood cover over them for the night and retired to rest. Next morning I placed a clean hive on each stand, and when the sun had grown strong I removed the cover and lifted out all the bees with a a shovel in front of the hives giving them choice of situation, the apparently dead bees assumed life in a short time, and at evening I could not see a single dead bee, with the exception of a few that got crushed by accident, but they had taken possession of (not the two hives) but one: I raised it up, when lo! it was almost full of bees! To work they went, and in a few days had combs fast to stand.

Well, that's not all, I had in a short time after what country folks call a cottage hive, flat top, hole in middle, with two caps (straw) to hold 12 lbs. each, I placed this hive cap on, over pit, in order to get honey ready for an order I had received that evening, and went through the smothering process. I gave the hive a shake and brought it into my dwelling, and not a single bee was to be seen among the combs, I left also for the night, and in the morning the whole floor was strewn with bees. I lifted off the cap, and there was the living mass of bees. I hastened out to pit to see what quantity had fallen a victim to sulphur, when lo! there remained only about a score. Would it not then be a good plan to place a hive or super with hole in top under an empty one, and give a few puffs of

sulphur smoke and all would be safely located in about one minute; I mean clean rock sulphur?

This is how I make sulphur match. Get a piece of worn linen, dip in melted nitre, dry and dip again in melted sulphur, give a twist, and it won't go out until last inch is burned. I have got on thus far since I commenced *Journal* (thanks to friends), eight hives, dimensions 15 × 15 × 9 = 2025 cubic inches inside measuring. King's Text-book gives 2000 inches in your *Journal*, so I must be near right. I enclose subscription to end of year.—J. Traynor, *Tinahely, Feb.* 8, 1879.

BEE-KEEPING IN ROSS-SHIRE.

Being, I think, the most northerly bee-keeper who uses Abbott's hives, a few notes may interest some of your readers. We had a very good season except when the heather was in bloom; it was then very stormy and wet, greatly to the detriment of supers. I find my bees go into and work much better when the supers are placed on the frames with no bottoms or perforated zinc to them, taking them off is quite easily performed by running a bit of wire between them and the frames in the morning, and then raising them about a quarter of an inch with small bits of wood, the bees then have room to lick up any spilt honey and make all tidy, and the supers can be lifted off and taken away in the afternoon or a few hours after they have been raised. I have never found any brood in any of them, and I don't think the queen would care to go into them unless the hive was very full of honey and she could find no room there. If bees won't take to a super, it is a good plan to place a hot brick well enveloped in flannel, or better still, a flat hot-water bottle, on the super towards evening after a good day's honey gathering; the heat of the hive being much raised, the bees will at once go up and begin to make comb, and will seldom leave it again unless bad weather or a swarming mania sets in. Swarming manias remind me of your new Combination hive; I think the idea capital, and mean to give it a trial this season, having already made one. But I must say I chuckled when I first read the account of it, and said to myself, 'Now, Mr. Editor, you have raised a hornets' nest about your ears, which I think not many people would have had the courage to do.' If a few drones do get inclosed between the zinc-excluders, I think they would do more good than harm, as they would eat any honey that was stored there, keep up the heat and cells clear for the queen to breed in; and, as you remark, it is quite at your own option if you have drones in or not. If you put nothing but worker-comb and a properly fertilised queen between the zinc-excluders, I don't see how you can well have drones unless the bees enlarge some of the cells. Everybody is down upon the poor drones, I must say I like to see a good many of them, as it shows a hive is in good order they are also very useful in keeping up the heat of the hive when a great number of workers are out, especially so when a swarm has left a hive in our most changeable climate. I use nothing but bar-frame hives made by myself from the one I got from you some years ago, and have done away with straw hives altogether, they and Mr. Pettigrew may do very well for those who like them, but I don't. Bees about here are all kept on the old sulphur and happy-go-lucky plan, in consequence, during the fearful weather we had in 1877 when we ought to have had summer, most of them died, and bee-keepers were much astonished that I got a good deal of honey (we had nearly three weeks' fine weather when the heather was out, the only fine weather we had all the season) their hives were too weak to take advantage of it. Of course there are no Ligurians about here, but I hope before long to give them a trial. Before I conclude I must congratulate Messrs. Abbott Brothers on the number of prizes they have taken this season.—Ross-shire.

BEE-KEEPING IN FIFESHIRE—WET HIVES.

I intended giving you some account of the hives in Fifeshire, but owing to the stormy state of the weather, have never got an opportunity to make any examination: however, none of my own hives have succumbed altogether, but I have no doubt they have all suffered to some extent. I have only drawn the floor-boards: on one of them I would get about one handful of dead bees, and on the other not more than two dozen. How they have managed to pull through, with twenty-six degrees of frost two or three times a-week, I must leave to others to explain. We had twenty-six degrees of frost on Sunday night, and it has been snowing all this afternoon; when it intends stopping I cannot tell. Bees must be very anxious to get out for a cleansing flight now; they have only been once out this last eight weeks; there appears to be no dysentery among them as yet, at least they can all manage to fly and clean themselves when they get the chance. I have only another question to ask you. A friend of mine has some six or seven hives, and during the whole of this storm you could see water actually running out of the door of the hives. Having never observed anything of the sort at this time of the year, your opinion will much oblige. I may state, his hives are all two-bar frame-hives, with quilt on top, and some loose straw above quilt. —John White, *Falkland, Fifeshire.*

[Note.—If the roof of the hive is quite sound, there can be little doubt but that the quilts of your friend's hives are impervious, and that the moisture generated inside condenses against the cold walls and forms the water which runs out of the entrance. The quilt should be examined, and whatsoever prevents the moist vapours from passing through, should be removed, and house-flannel, or some equally porous non-conductor, put in its place. At one time, when crown-boards were used, and it was thought correct to screw them tightly down, the condensation was considered natural and the water accepted as a concomitant to be dealt with instead of prevented. So far was this believed in, that Mr. W. Carr, of Clayton Bridge, invented a floor-board, so contrived that the water could run out through furrows, while the bees could walk over them on dry 'lands' or ridges. Now, however, it is understood that the proper course is to permit the escape of the moist vapours of the hive without creating a draught, and we shall only be too pleased if some one will invent a better means than the *quilt properly applied.*'—Ed.]

BEE-KEEPING IN NEW ZEALAND.

No. I.

Being a Lincolnshire man, I sometimes receive a *Stamford Mercury*, in one of which I saw an account of the exhibition held by the bee-keepers at Stamford, in which, amongst several other things unknown to me, was mentioned a 'honey-slinger,' as a means of extracting the honey from the comb. Now, when I was in Lincolnshire, the only way I ever saw it done was to break up the comb and strain it (that was sixteen years ago), and I have always done so since; but I think it spoils the flavour of the honey, so I am taking the liberty of writing to you to ask if you could describe the instrument mentioned, or refer me to some work in which it is described so plainly that I could make it, or get it made. I enclose a 6*d*. English stamp for reply (I rode nearly 100 miles to procure it).

I may mention that bees are very plentiful here. A good many trees in the Bush that are hollow are taken possession of by the bees, and filled with honey, so that the market-price of honey is seldom more than 4*d*. per lb. I think if we had a better way of extracting it (the native way is to strain it through an old blanket), so as to make, or rather retain, its good quality, it would pay for shipping to England.

Where I am now living I could keep hundreds of hives, if it would be profitable to do so; as it is, I keep about a score for my own use, and for giving away.—Wm. Rysdale, *Cambridge, Waikato, Auckland, New Zealand.*

[Kindly forwarded by Mr. R. R. Godfrey, of Grantham.—Ed.]

No. II.

[By a singular coincidence, we received on the same day the following letter from Mr. Frank Parish, a young gentleman formerly on our staff, but now a successful bee-keeping pioneer in New Zealand.—Ed. *B. B. J.*]

I was highly delighted, on receiving *B. B. J.*, to see the success you have attained, both in England and France, in regard to bee-hives. I should think the Combination hive would work admirably here, where we have to take the honey so often. I started in October last with twenty-four hives with fixed combs, and at the present time I have sixty odd, mostly natural swarms. I have had to be my own carpenter, as well as to look after my bees. Eight days after my first swarm I had to commence honey-taking, to give the queen room for laying, and had to break out the comb, as I had no means of removing it; but I soon had one of your Little Wonder extractors fitted up, which I have used ever since with great success, taking honey every eight or nine days from newly-made combs, with hardly a mishap, except in the case of a very thick outside comb. The gentleman with whom I am working considers my Extractor one of the cleverest inventions he has ever seen, and calls it marvellous, and says that with it we ought to surpass all our neighbours for purity and quality. I shall try your Combination next year; at present I am using your Cottagers' hives, which are far before those used in this colony. I see one of your correspondents complains of breaking the combs in the Extractor, but my experience ought to give him heart to use it again, especially when it is remembered that it is hotter here than you ever get it in England. I have heard that a celebrated English firm are about to take thirty tons of honey for sale in England, and intend (if they can get it) to make our honey a speciality. I can vouch for the above being correct, as we were asked to join in the "spec;" but we hope to get a better price, and find a market at home, for our slung honey. A neighbouring bee-farmer wrote to a lady in America, who is supposed to be an authority, respecting an Extractor, and she ignores the fact of its existence, saying it is quite impossible to sling honey from combs, old or new! Hoping all are well, wishing best remembrances to all friends, and hoping you will meet success open-handed during the coming year, believe me, yours sincerely, Frank Parish, *Pakirikiri, Whakato, Poverty Bay, New Zealand.*

A SPRING OVERHAUL.

Of all the severe winters of my bee-keeping experience the by-past has been by far the most protracted. Is this really spring? Twenty-second of February, and yet hill and dale lie deeply covered with snow, while icicles hang glittering from every twig! That shy bird, the water-hen, has long abandoned her frozen stream, and openly fraternises with the Aylesburys at the feeding-trough. Those bold little marauders, the tom-tits, batter down the snow-heaps on my landing-boards; and a broad ring of the disembowelled bodies of my poor little favourites lines the snow around a pyramidal pear, attesting how the rapacious little rascals enjoy sweetening their rapacious maws.

Although the unprecedentedly long frost-spell of over three months without a break has not admitted the shortest flight, still the outside thermometer did not register a lower point than 10°, while the frost of the shorter, but sharper, winter of 1860–61 was much more intense: Christmas Eve (1860) it sank with us to 1° below zero at parlour window, and to 7°, or 25° frost within an Observatory stock snugly placed in a stair-case window. Frost seemed fairly to be giving way to rain and thaw on the 5th and 6th February; and on Friday, the 7th ult., it cleared, and old Sol at last showed his face, sending up the temperature at a bound to 50°, and the bees poured forth, jubilantly disporting themselves in the bright sunshine; and although ice still stood several inches thick on the garden walks, and my fire-clay pipe pedestals glittered in a background of deep melting snow-drift, I thankfully embraced the opportunity of summoning my assistant with the operating table, till we should thoroughly investigate how matters stood. Cover removed, the stock gently removed to table, comb filings, dead bees, and other *débris* rapidly and thoroughly scraped off with knives, then with coarse cloths, mahogany old dining-table top-boards rubbed up till they shone, stocks returned, slides withdrawn, frame after frame raised and examined, an audience sought with

majesty, surplus store duly appraised, slides run in, and covers replaced, and so on till my eleven colonies were gone over; all were in the most satisfactory condition despite their lengthened imprisonment. Only one Stewarton stock in two octagon boxes was I at all anxious about: some comb nibblings about the entrance showed that a mouse had been making some sorties from the straw hackle which protected it; but very possibly the stilettos of the watchful Italians had caused a hasty retreat to be beaten by the

'Wee, sleekit, cow'rin, tim'rous beastie,
O, what a panic's in thy breastie!'

No harm done; indeed, this stock showed a considerable breadth of sealed brood in advance of all the rest, the invariable rule in my apiary being the pure-bred imported Italian breeds earliest in the spring, although the first cross is the more muscular and best honey-gatherer.

All my Stewarton colonies are wintered in well-ventilated, light-wooded, moveable covers, without haps or any packing stuff whatever, the thin, slack working-slides between every frame affording the requisite ventilation. Only one box, made purposely for holding my Observatory stock frames, has a crown-board; and although the latter has a good central feeding hole for ventilation, its combs have hitherto been the worst kept in the apiary. This last autumn, by way of experiment, I removed the crown-board altogether, substituting for it a bound strip soft woollen crumb-cloth, folding it four-ply thick. The extemporised quilt suited admirably, this stock and its contents being altogether perfect, justifying its general adoption; and when opened out can be readily dried and laid by for future use.

My experience of the very severe winter of 1860–61, and this most protracted one of 1878–79, during both of which my bees came through in the finest condition, far above the average of open changeable ones, confirms the opinion I have elsewhere expressed, that bees can resist the most severe winters we have in this country with impunity, always provided their domiciles be kept externally as well as internally *dry*. The humidity and variableness of our island's temperature when this is neglected prove much more destructive to bee life than the far lower temperature of the drier atmospheres of the Russian and Canadian winters. With the exception of the one pet day above alluded to, my bees have had no second flight, frost and snow having again resumed their wonted sway.—A Renfrewshire Bee-keeper.

EXAMINATION OF STOCKS, AND MOVING BEES IN FROSTY WEATHER.

As soon as the frost was gone, I overhauled my fifty-five stocks, and found one stock dead. They had worked away from the centre of the hive to one side, and had consumed all their stores on that side, and because of the cold were unable to move across to the other side, where were left about 6 lbs. of honey. I found three others, similar, but only about half the bees were dead in them, and they were all in hives with thirteen frames; a lesson for another time to shut them up into about seven or eight frames, and to see that they have plenty of food.* I think, upon the whole, the straw skep stocks stood the sharp weather best, as there did not appear so many dead in proportion to the others. In December last, being in London, I thought I would go round by West Wycombe, and take home (about seventy miles) two stocks of black bees that I bought there in July previous. It was one of those very sharp, frosty days. I tied them up, about 11 a.m., and carried them to the station, and then turned them upside-down in the train to Oxford, where I left them on the platform two or three hours, before I went on to Leamington. When I got them there I put them in a carrier's cart, who brought them home about 10 p.m. They had been agitated during the journey very much, and, to use a common expression, were as hot as fire; but when they had a chance to fly in January they were all right, and they are as full and strong as any of my other stocks. I did not like taking them during such severe weather; but fearing I should not have a chance again for a long time I decided to risk it. I do not wonder at there being some good and heavy supers gathered at Wycombe and neighbourhood, as these two stocks are heavier than any two of my own. I turned them up on Saturday night, Feb. 15th, and found them in good order, and do not think they received any harm from the journey.—A Warwickshire Bee-keeper, *Honey Cott, Weston, Leamington.*

STRENGTHENING COMB FOUNDATION.

I have an idea that if a thin sheet of very fine silk or gauze were to be dipped in wax, and then impressed by the foundation-machine, it would answer admirably for stock-hives, or for combs, from which the honey is to be extracted, it would facilitate removals of hives without danger to combs. Could you not try it or induce Mr. Raitt to do so?—R. E. O.

[We have tried the introduction of sundry things in wax-guides, but have always found that where fibre existed the bees would tear it out. Not having invested in an American machine, being somewhat disgusted with the price, and hoping shortly to produce a substitute, we forwarded the above suggestion to Mr. Raitt, and here is his opinion.—Ed.]

In reply to yours anent the use of cloth, &c. in foundation, I have been sitting on that egg for long. Cloth will not do, however. To be perfect the sheets, after being dipped, 15 in. long, must be thick enough to stretch in rolling to 18 in. or 20 in., else the side walls will be defective—that is one obstacle; the cloth would not stretch and the wax would be pushed along its surface, messing the rolls in a fearful manner. I have got samples of Japanese window-paper, also thin vegetable parchment, and am to get thin gutta-percha also. When I find either will work I hope to manage to get off a *continuous web*. Only in this way would I be able to produce it for sale without increasing the cost. But the terrible bugbear of sagging and breaking down

* Is not this an argument in favour of hives, long from front to rear, in which the bees gradually retire on their stores without being obliged to go from comb to comb? Had your frames run the other way all would have been well.—Ed.

is a mere get-up amongst those who use foundations wrongly. The Yankee Doolittles and others who use it in frames 12 in. deep may have trouble; but in frames 9 in. or less deep, and used according to my directions, there is *no fear*. I never found a sheet of all I used last year wrong. Some American stuff I got through Mr. Hunter stretched badly; but there it was the fault of the maker.—W. R.

BEE AND HONEY STATISTICS.

Thanks for publishing my note on 'Bee and Honey Statistics.' I admit that it is not easy to see how such statistics could be collected, but I think it would be both interesting and instructive to have something of the kind done. I don't suppose there is much likelihood of getting a column in the next census paper as you half playfully suggest; but if the matter was deemed of any importance, could not something be done by the local Bee Societies? These are now becoming so numerous (in Scotland and England at least), and have an influence so widely spread, that I think by a little mutual agreement and co-operation among them, each might gather up statistics for its own district, and have them reported for general edification in our *Bee Journal*.

I leave the matter entirely to your own discretion, as I would not think for a moment of burdening your columns with anything of a merely local or private interest only.—G. A. R.

[This is an excellent suggestion, and we hope Secretaries of Associations will devise some means by which such returns as are suggested can be made. We shall be very glad to devote a column of our *Journal* to a form which may be filled up and cut out to return when thought desirable.—Ed.]

SUCCESSFUL AT LAST.

My bees did very well last year, and from supers from ten Abbott hives I realised more than 20*l*. at 1*s*. 3*d*. a pound. I should have made more than this, but from putting no division between some hives and the supers, five or six supers were spoilt from being bred in. Besides this I have lots of slung honey, and three straw hives.

I must take in the *Journal* again, so I wish you would send me the back numbers for last year, Vol. VI.—S. N., *Cowbridge, Wales*.

[We are simply delighted with this letter. In the autumn of 1877 our revered correspondent lost heart in the race, and determined to discontinue bee-keeping; but perhaps through being unable to dispose of his stock, continued against his will, during 1878, and with a result that is most cheering. Is it possible that the bees were a little over-managed during previous years?—Ed.]

A DISCLAIMER.

Mr. Raitt is labouring under a mistake when he writes to say that his name appears on the list of the Committee of the Perthshire Apiarian Society, and that he found it necessary to ask its withdrawal. It is quite true that Mr. Raitt was nominated as a party of Committee to draw up rules for the above Society. That Committee has done its work, and has now ceased to exist. But at the last meeting, when the Committee of the Society was appointed, it was never once thought to ask Mr. Raitt to act on it. If he refers to the article in the January number he will see for himself.—W. W. Young, 50 *High Street, Perth*.

THURBER'S STYLES OF HONEY.

We have been requested to insert the following correspondence:—

'*London, February* 14, 1879.

'Dear Madam,—Our attention has been called to the published proceedings of the British Bee-keepers' Association, of which your honourable self is President.

'We note that, while Professor Redwood endorsed the purity of our recent importations of honey in the comb in a very questionable manner, several others present most unhesitatingly and unfairly assailed its quality. We feel that these printed proceedings jeopardise very seriously the sale of our large stock of honey; and, feeling assured that your honour would not intentionally lend your influence to unjustly injure the sale of an American product, and thus entail serious loss, we therefore propose to defray the expense of an exhaustive analysis of samples of our honey in the comb, to be selected promiscuously from our stock by an impartial chemist—one familiar with and accustomed to analysing glucose.

'In America, so wide is our latitude, and so varied are the floral and vegetable products, that the honey in our different sections is as distinct in flavour as the different fruits of tropical regions. This we claim as a *merit*, for what is delicious to one palate may not be acceptable to another. Each season bees gather more than one floral harvest, and every bee-keeper is capable of classifying his products with hair-breadth accuracy; therefore it can be presented to consumers in distinct varieties.

'It may perhaps be interesting for you to examine our various qualities and styles. If so, we will be most happy to submit samples, feeling sure that, if the quality and merchantable style merits your approbation, you will not withhold it.

'We are, with much respect, Baroness,

'Your very obedient Servants,

'H. K. and F. B. Thurber and Co.

'Care of Messrs. Brown, Shipley and Co.,

'Founders Court, Lothbury, E.C.

'*To the Baroness Burdett-Coutts.*'

[Reply.]

'1 *Stratton Street, W., February* 19, 1879.

'Gentlemen,—I am directed by the Baroness Burdett-Coutts to acknowledge your letter of the 14th inst. with reference to the discussion on the merits of American honey which took place at a recent meeting of the British Bee-keepers' Association.

'The discussion in question took place after the Baroness had left the meeting, and she is therefore neither responsible for whatever may have been said, nor so competent, perhaps, as one who was present to give the discussion the more favourable interpretation as regards your specialty that she is confident it is capable of bearing. All that she can do is to express her regret that such a misunderstanding should have occurred, and to suggest that no more serious charge was brought against American honey than that, being collected from a very wide area, it naturally varied greatly in quality, and was, of course, open to the possibility of adulteration, which is the special danger of extensive processes of production.

'I have the honour to be, Gentlemen,

'Your obedient Servant,

'*Messrs. Thurber and Co.* G. T. Clough.'

The General Society of Bee-masters for the Province of Saxony intend holding a grand exhibition of produce and appliances connected with their craft at Dessau in August and September next.

Echoes from the Hives.

Carlisle.—'I see I am behind with my sub (by pink wrapper). I now send you cheque in payment for two years. I cannot say I have done well with my pets, having lost all but one, caused by foul brood, and I dare not invest in more yet for fear it is still with me. I wish I could because I do like to hear the hum and watch the progress of each hive breeding and storing. Say what people will about straw skeps, if I got twice as much honey from them I could not be satisfied with working in the dark as some do. People only want to try the bar-frames to be convinced both as to profit and interest.' —J. D.

Queries and Replies.

Query No. 294.—I have been fortunate so far in wintering my ten stock hives, except in two instances. 1st, one a Neighbour's Improved Cottage hive, which, on examination last week, proved to be full of dead bees and the comb all mouldy, although full of honey. The other, an old-fashioned Woodbury hive, which was doing well and appeared, when tested by lifting, to have a plentiful supply of honey just before the last frost broke, was found a few days since to have every bee dead and all its store of honey gone. The combs were very damp and mouldy, but breeding appeared to have been going on up to the last moment, as there were young bees and grubs in all stages. Will it answer to use this mouldy comb again after drying? I have made a dozen Combination hives from a pattern lent by a friend.—M., *Liss, Hants.*

Reply to Query No. 294.—If the mouldy combs be sprayed with salicylic acid in solution (in warm water) and carefully dried, they may be used; but the game is scarcely worth the candle when foundation can be had which is sure to be wholesome.—Ed.

Query No. 295.—I have two hives, No. 1, the Improved Cottage straw hive of Neighbour's; No. 2, their bar hive and super, with similar bars. A swarm was placed in each hive on the 30th June, 1877. The glass supers have been taken, filled from No. 1 in 1877 and 1878. No swarm has issued from either hive; no honey has been taken from the body of either hive during the two seasons. A super was put on No. 2 in the year 1878, in which four bars were filled and taken for use; all the honey in the hives has been left on both hives for the winter supply of the bees. These hives have been weighed to-day, and the honey and comb in No. 1 weighs 23 lbs., and that in No. 2 weighs 45 lbs. I now wish to clean the floor-board in each hive, and see the state of the stocks in each after their two years' occupation. As respects No. 1, I conclude I have only to pass your knife round, to separate the margin of the straw, &c., from the board, and, after a puff of smoke, to turn the hive bottom upwards, to rest on a suitable pail. Is it necessary in this case to extend the operation of the knife beyond the outer margin? As respects No. 2, I am quite at a loss how to proceed, and I cannot find any directions in any leaflet in my possession.—C. L., *The Querns, Cirencester.*

Reply to Query No. 295.—The removal of a hive from its floor-board is a very simple affair, unless it should happen that the latter is nailed or screwed to the former. If the No. 1 has all Messrs. Neighbour's arrangements, its floor-board is probably held to the stand by thumbscrews turned upwards into the former, and the hive is held down by brass clips and buttons. These latter must, of course, be unfastened as a first preliminary, but the floor-board need not be displaced, unless it be damp or very dirty. It will be impossible to pass a knife between the hive and floor-board, as the hive shoulders down outside its upper surface, so having released the fastenings, and blown some smoke into the entrance, a chisel should be inserted then, and the hive levered off its bed, and while the bees are up amongst the combs it should be inverted, and any sign of wax-moth or dirt removed from its edges. It should then be set right way up, and the floor-board thoroughly cleansed, when it may be returned to its original position. This should of course be done on a fine afternoon. No cutting of combs is necessary unless you find something wrong.

As regards No. 2, 'their bar-hive' gives room for surmise as to which is meant, as Messrs. Neighbour sell various kinds, but, nevertheless, if the floor-board be not a fixture, the process is very similar; but should such a fault exist, the screws (if any) must be withdrawn, or if nailed, the floor must simply be prised off, and the nails taken out while the bees are under the alarm caused by the smoke first driven in at the entrance. It often happens that floor-boards are temporarily nailed on, to insure safe transit, but the fastenings should always be removed, or rendered capable of easy removal, before the hive is tenanted. Should the bar-hive be one of a less ordinary kind than we are supposing, it would be well to apply to Messrs. Neighbour for further information.—Ed.

Query No. 296.—1st. Is it possible to put a super on a common box (probably it has been a tea box)? If it is, what size holes should I bore on the top? I do not want to transfer until the latter end of the year, in accordance with your leaflet. 2nd. Having made a hive for a cottager last year, should like to make him a super this year. Though they do not like to part with their old skeps, they will admit that they do not like killing their poor bees for their honey. As I made the frames of the hive $\frac{3}{8}$ of an inch wide and $1\frac{1}{2}$ inches from centre to centre, this leaves $\frac{5}{8}$ of an inch space. If I make a light frame of laths with 5-16 of an inch space, place it crossways on the bars, and set the super on top, would that keep the queen and drones out? I do not expect it will be so good as your perforated zinc, and perhaps not so cheap, only the carriage amounts up in small quantities. 3rd. I am afraid this is an old complaint with beginners—crooked combs! But I think mine are caused by being so near the railway, as every train causes them to jar, and they are half-a-mile from home. Would you please give me a word of advice how to swarm them? I hope you will pardon me for taking up so much space.—R. Burton, 3 *Grantley Place, Grantley Street, Grantham.*

Reply to Query No. 296.—It would be well to see in which direction the combs run, and endeavour to bore a series of holes between two pairs on either side of the brood-nest—say four one-inch holes with half an inch between them. Thus, supposing there were four combs between the two series of holes, a super eight inches square would cover them nicely. If it were intended to use the excluder zinc a light frame of wood should be made $\frac{1}{4}$ of an inch thick to come between it and the super. You cannot do better than adopt the sectional super system. If you look in any trade catalogue you will see the shape and make, and can then manufacture your own. The laths will not do, as they expand and contract too much; though, if 5-16 apart, a cockchafer could get through, say nothing of a bee. The excluder zinc can go by post in small quantities; a foot would cost about *3d.* postage, lesser pieces in proportion. Crooked combs are indeed an old source of complaint; but, as a rule, the fault lies at home. We cannot think that alongside a railway is the best place for bees, there being a kind of chronic jarring which bees love not; but the crookedness of the building must be attributed to other causes, enumerated times out of number in the *Bee Journal.* The remedy, however, is the thing desired, and we cannot do better than refer you to our leaflets on

making artificial swarms, and on transferring. It is a matter of indifference whether bees are in a skep or in an oak-tree. If you can jar their combs and make them afraid, they will quit their nest—a child's hoop-stick will do the work in the former case, but a sledge-hammer may be inoperative in the latter; but in an ordinary hive, whether the combs be straight or crooked, the process is the same, more or less continued.—Ed.

Query No. 297.—Removing Bees.—I wish to remove a stock of bees from a friend's garden to my own. Our gardens are about a quarter of a mile apart, and for this purpose I have sent them to another garden at a distance of about three quarters of a mile. Will you please to inform me, in the *Bee Journal* for March, when it will be prudent to have it brought to my own apiary?—C. L.

Reply to Query No. 297.—The removal to the home garden may be effected at your pleasnre, but preferably it shoudd take place before the bees take wide circles of flight—*i.e.* before crocuses and willows tempt the bees far from home. Put a baulk—*i.e.* a bnsh or stake—in front of entrance when the bees are set free 'at home,' so that they may notice a difference in their surroundings, and mark well the change.—Ed.

Query No. 298.—I find I must move two stocks of bees from a summer-house, where they have wintered, as soon as is prudent. When would you advise me to do this; and should I effect the change of position at once or by stages? Perhaps, as all inside are now almost dormant, a clean move would be the best?—C. O.

Reply to Query No. 298.—The bees being within a building will recognise it as their home as long as it remains and they can get into it. On clear, fine days, when bees are flying, the hives should be moved forward by very short stages of a few inches per day, until well clear in front of the building, and then, supposing them to be represented by A and B, and that the removal is to take place to the left, A should be gradually taken there by daily gradations, and when located B may be taken more rapidly—say a yard at a time—as being the only one on the move: there would be little chance of their entering the wrong hive. If it happens that the summer-house is closely built, and can be closed entirely, the bees may be set outside its front, while quiet within the hive, and afterwards gradually removed, A being first acted upon as before described. The summer-honse must be closed while the further removal is taking place.—Ed.

Query No. 299.—Ventilation—Old Honey as Food — Drone Comb Foundation — Steadying Frames.—(1) How can I give ventilation in the top of the hives? In winter the foot-boards are always wet and the hives mouldy inside, and I never cover them with anything but the quilt, &c., which is not at all impervious. (2) Would it be safe to give honey to swarms that have been taken from hives in which there was a little 'foul brood,' the honey is in the combs and they were sprinkled with the acid in autumn? (3) Is there any such thing as drone comb foundation for supers made by machine, worked on both sides; if not, would you recommend me to get some taken from casts? (4) I think I could steady the frames in the hive by putting two narrow pieces of timber on each side of the foot-boards, with notches, into which the frames would fit; would you approve of this?

Reply to Query No. 299.—It would appear that there is already too much ventilation within the hive; or, in other words, there are not sufficient bees in it to keep up its temperature. It is evident that the vapours of the bees' nest escape from the cluster, and get into the cold parts of the hive and condense, instead of passing upwards through the quilt, affording another example of the necessity for a means of preventing the circulation of air round the ends of the frames. The loss of heat by this means taxes the powers of the bees to a great extent and causes increased consumption of food for heat-producing purposes, which in its turn increases the moist vapours and dampness and mouldiness outside the combs in which the bees cluster. Four slips of wood about six inches long and half an inch square (or thereabouts) thrust between the ends of the frames that enclose the bees, would stop the circulation and render the bees more comfortable. Feeding with honey from foul-broody stocks would be sure to generate the disease anew. Boil it up and skim it well, and it will be harmless. We do not know of any one who supplies machine-made drone foundation, and we can scarcely recommend that made from casts, as it contains so much wax that it would spoil the supers for use as comb honey. The easiest way of steadying frames, if they are loose, is to screw a piece of wood on top of them at front and back; if the top bars are thus made rigid, the bottoms cannot swing. Anything in the shape of a rack at bottom causes propolising, and often causes rushing of bees when manipulating.—Ed.

NOTICES TO CORRESPONDENTS & INQUIRERS.

Bee-Sting.—Crooked combs are supposed to be things of the past; a wax-guide should be fixed along the centre of each frame. The frames should be the least trifle less than 1½ inches from centre to centre of each other rather than a hair's breadth more, and the hive should be so arranged that the frames are raised at their back ends about an inch higher than at the fronts. A centre-bar would be no use as a help to keep the bees straight in their work. The box in which the bees have built at the back may be reversed when they begin to work. It would be much better to put your skeps on to bar-frame hives (cheap Makeshifts would do very well) rather than to increase the depth of the skeps with bands of straw. In the former case as the bees increased they would build combs on the bars, and in making the desired artificial swarms you would only have to drive out the queen, and put her into the bar-frame hive, and the business would be done. Should you take our advice, set your skeps on the bars of the new hives, and cover up with anything that will force the bees to work through the bottom entrance. When the top hive is removed, remove also the other covering, and place a quilt carefully upon the frames, and a roof over all, until the hive is full of combs, and then put on your supers.—Ed.

A. M. *Stewart Bank.—The Standard Hive.*—The outside dimensions of Standard Hive No. 1 (if that is the one you mean) are—from front to rear, 20 inches; from side to side, 19⅓ inches. The body box is 10½ inches deep; the air-space is about an inch, but as the inside of hive tapers it varies. The height of roof is 10 inches; the height of the whole, 2 feet 10 inches. These are as near as they can be given, considering that the materials of which they are composed often vary in thickness. The number of leaflets published is nine—numbering them to twelve is a printer's error.

Walkington, *Beverley, Yorkshire.*—It will be very unwise to attempt to get the bees out of the box until the weather is fine and settled and provision can be found in the fields. The way to do it is exactly as in the process of transferring: the hive must be inverted and the bees driven out, then we would prise off one side of it, and take out the combs one by one, and dispose of them according to merit. Those containing brood should be fixed at once into frames, and given to the bees; the others may be utilized afterwards. A box hive, 16 inches high, with fixed crown-board, is a monstrosity.

*** *Owing to the amount of space occupied by the Report of the Annual Meeting of the British Bee-keepers' Association, we have reluctantly been obliged to postpone many interesting communications till next month.*

THE

British Bee Journal,

AND BEE KEEPER'S ADVISER.

[No. 72. Vol. VI.] APRIL, 1879. [Published Monthly.]

Editorial, Notices, &c.

APRIL.

There is an old saying, that the month of March comes in like a lion and goes out like a lamb, but in the case just concluded a more incorrect specimen of folk-lore or weather-wisdom could scarcely have been experienced. After the terrible four months ending with February, the beautiful weather which the past month commenced with, filled the hearts and minds of bee-keepers with delight, for it enabled them to overhaul their stocks and rectify whatever was amiss, and at the same time encouraged them to stimulate their stocks with both syrup and pea-flour as substitutes for honey and pollen; and a welcome time it was for both the bees and their owners, as it gave opportunity for fortifying stocks against the cold winds, frost, and snow, by which they are now besieged and confined within doors, and which have also lately prevented examination or interference of any kind except within doors and under unfavourable conditions. The past month is more truly described as 'March of many weathers,' for its alternations have been remarkable; but since the north-east wind has asserted itself, with its blighting bitterness, it has been uniformly unkind, and dangerous alike to man and bees. Never in our memory has everything connected with Agriculture, Horticulture, and Apiculture, been so backward. Nothing can grow, and as regards bees there will be no natural provender for them for some time after the weather breaks, and, if artificial aid be not afforded, they will be in poor condition. Judging by our own case, as compared with last year, we are at least six weeks in arrear, and in many instances flowers, &c., are three months behindhand; and we are sorry to say many of the plants that were intended for interim supply have perished altogether. In January of last year our garden was glorious with wall-flowers and arabis alpinus; but now, three months later, scarcely a flower, save crocuses, can be seen. Our palm willows do not appear to make any progress, a month ago they were apparently bursting with promise of a full supply of natural food for our bees, but, like the gooseberries and currants which should have yielded abundance, they are simply 'promise crammed.' It is manifest that presently, perhaps all at once, indeed probably so, the whole earth will put on holiday raiment, and flowers and fruit-blossoms will offer a general feast for bees; and where stocks have been well cared for and kept strong, early supers of honey may be obtained, which will amply repay the costs incurred in keeping the stocks strong.

WORK FOR THE MONTH.

Feeding should be very carefully attended to; in many cases it will be necessary in support of life, and in all it will be valuable as an inducement to breeding and the production of early swarms. It should be remembered that the constant inflow of honey—or its substitute, sugar-syrup, be the supply ever so small,—teaches the bees to act as if summer had arrived; and though the weather may be cold enough to prevent the bees leaving their hives to gather pollen, breeding will go on, and the stocks will gradually increase in strength.

Artificial Pollen should be given freely on every fine day until the natural supply renders it unnecessary, for bees will not touch the artificial when the natural is obtainable. Sometimes bees fail for some time to acquire a taste for the artificial, in which case, if some of it be sprinkled amongst the petals of the flowers they visit, they will soon learn to collect it, and will afterwards seek for it, in any receptacle in which it may be offered.

White Bees on alighting-boards are very likely to appear, and as they are generally an index that feeding is necessary, the hint ought not to be neglected. It is possible, however, that a sharp snap of cold weather may cause the bees in a well-to-do hive to crowd together for warmth and leave some of their brood exposed, which the bees afterwards discovering

to be dead may be throwing out—a possibility that will be quickly discovered if food be given to them, for if starvation be the cause, the receipt of food will prevent further destruction of brood; whereas if it be chilled and already dead, the bees will continue to throw it out until the hive is cleared of it.

Narrowing Entrances during sudden changes to cold weather has a very beneficial effect by preventing the loss of heat and lessening the liability to loss of brood as before indicated.

Queenlessness is a very possible condition of stocks after so protracted a winter and is difficult to overcome, seeing that the queenless bees will be aged, and therefore liable to encase queens that are offered to them. It is not easy to 'civilise'—if the term may be permitted—bees that have been queenless for a long period; and as attempting to unite them to other stocks often causes the loss of the queens therein, it is questionable whether it is not advisable to exchange their empty combs for others filled with brood, thus employing them as heat-producers instead of allowing them to be idle, and when drones are about and young bees hatched in their hive, to set them raising queen-cells for general use. If this suggestion be adopted the brood-combs given must contain hatching brood, or that which requires nursing will probably be neglected: for as a rule aged bees will not undertake the feeding of larvæ, and often will not attempt to raise queen-cells, a fact which points to the necessity for supplying hatching brood when giving combs to queenless stocks for that purpose. If a stock is discovered to be queenless when normal drones are in existence the best plan is to interchange its broodless combs with those of a stock well charged with brood; it will give the queenless bees plenty of occupation, and the queen in the other hive will speedily fill the empty set with brood. Queenless stocks when weak are a nuisance, as unless standing side by side it is dangerous to attempt to unite them, and requeening is very difficult, and therefore to prevent risk it is often better policy to destroy a handful of bees and keep their combs for a swarm, than to waste time on what is of little use from its having already greatly lost its vitality and power.

Preparation for Swarming and Supering should be earnestly undertaken; it is the height of folly to be caught napping in matters of such importance, but is commonly the case in bee-keeping, and unfortunately when, through being '*too late*,' success has slipped from the grasp, the fault is seldom ascribed to its cause, and the 'pursuit' receives condemnation. We trust, with the great Show of the Royal Agricultural Society in prospect, that English bee-keepers will come well to the front, and show how early supers can be produced, and put before the world some specimens of pure English honey, than which there is no better in the world.

When the weather becomes favourable there will be a glut of honey, which will enable the clever bee-master to make a good harvest from his fruit-blossoms, to insure which, as far as possible, he should make his stocks as strong as possible. Ten hives might have the whole of their combs of brood, and the chief of their young bees condensed into six, the remaining combs being emptied of their honey, and distributed amongst the nuclei which could be formed of the remaining queens with a handful of bees each. Hives crammed with brood, and having plenty of bees, will be able, during April and May, to produce a respectable harvest for exhibition in June, which will compare most advantageously with the tallow-and-peppermint drops of the Yankee. Sectional supers alone should be encouraged, especially amongst those who wish to sell their honey; we have persistently advised their use during the four years since their invention, and individually would not sanction a penny of prize-money being awarded to masses of honey that could not, for marketing purposes, be distributed in that form.

Upward Ventilation, though of great importance during the winter period, may be beneficially dispensed with when bees are breeding.

Breeding can only be properly continued while the atmosphere within the hive is moist, and the ventilation should take place at the lower part of the hive, where the bees themselves will govern it by fanning at the entrance if the latter be sufficiently large.

Queen-wasps should be destroyed wherever seen. A moth-net would be a convenience for capturing them; and it should be remembered that every one destroyed prevents the formation of a colony of the pests, for, unlike the queen-bee, the queen-wasp, already fertilised, nurses her own brood until they become sufficiently numerous to relieve her of the duty, and permit her to devote the whole of her energy to the production of eggs.

THE HONEY MARKET.

At last this desideratum appears likely to be brought about in the most natural way; and if others in large towns will open their ports the difficulty will be solved, and associations, instead of being hampered by a traffic in honey, will have their hands set free to aid in its increased production. To Mr. E. Peters, of 17 Queen's Parade, Stapleton Road, Bristol, all bee-keepers

will feel indebted; for he has boldly stepped forward, and offered, as will be seen in our advertising columns, to become a commissioned agent for the SALE OF HONEY IN LARGE OR SMALL QUANTITIES, the terms to be agreed on between himself and the producer. The arrangement is a very simple one, and we have little doubt but that it will lead to the desired end; and in view of the coming shows, where honey will be exhibited in tons, if agents can be found to whom it can afterwards be consigned—for through the absurdity of show rules all honey 'exhibited' must remain 'on view' until the show is over—honey merchants should make themselves known, and, following the initiative taken by Mr. Peters, create for themselves a name as traders in the pure article. All thanks to that gentleman for having begun a movement that will effectually protect our British bee-keepers, and leave the foreign trash a drug in the hands of its manufacturers. At the same time we owe it to American enterprise that the honey market question has been so thoroughly investigated. Their huge consignments, thrust upon us almost without warning, came like smoke into a beehive, alarming everybody within the sphere of its action, and setting them to work like bees to save themselves and their belongings; but now, having got over the 'scare,' we think it right to acknowledge that the American honey merchants have really helped us out of what was a sore difficulty, viz., the means of disposing of our honey. They have proved that if in saleable packages it will find its way into our grocers' shops, and thence into family cupboards for every-day use; and we are thankful to them that they honestly stated it to be American production, and hope they will keep up the distinction, or, if not, that British Associations will establish a trade-mark and label for use by their members, so that there may be no palming off of foreign for British produce.

A DISTINGUISHED VISITOR.

It will be flattering and pleasing to the brotherhood of British bee-keepers to know that the distinguished editor of the *American Bee Journal* has been appointed by the North American Bee-keepers' Association to visit this country, to attend the various bee and honey shows which will take place during the ensuing summer, with a view to establishing similar institutions on the other side of the Atlantic. He is very anxious to ascertain as early as possible the dates fixed upon for holding them; and we hope hon. secs. will forward their fixtures forthwith, so that we may publish them in the May number of the *Journal*, and that they will spare no pains to make their shows worthy of the compliment implied. America has shown us that there is a market for honey in Great Britain, and we must try and show her representative our best method of stimulating bee culture.

ENGAGEMENTS OF THE BEE-TENT IN THE COMING SEASON.

June 30 to July 7.—The Royal Agricultural Show, Kilburn.

July 22–24.—British Bee-keepers' Association, South Kensington.

July 29.—Shendish, Hemel Hempstead.

August 20, 21.—Shropshire Show, Shrewsbury.

August 26.—Horticultural Show, Long Buckby, Northamptonshire.

Secretaries of Horticultural Societies, who are desirous of having the Association represented at their Shows are requested to communicate with the Rev. H. R. Peel, Abbot's Hill, Hemel Hempstead, as early as possible.

Certificates of entry for the prizes given by the British Bee-keepers' Association at the Royal Agricultural Show at Kilburn, may be obtained upon application to the Hon. Secretary.

BRITISH BEE-KEEPERS' ASSOCIATION.

The first meeting of the new Committee, elected by voting papers issued to the members at the commencement of the year, was held at 15 Beaufort Buildings, Strand, on Wednesday, March 12th. The whole of the Committee were present, consisting of the Rev. E. Bartrum (in the chair), and Messrs. C. N. Abbott, F. Cheshire, T. W. Cowan, R. R. Godfrey, J. Hunter, J. M. Hooker, J. P. Jackson, Rev. G. Raynor, together with Mr. W. O'B. Glennie (Treasurer) and Rev. H. R. Peel (Hon. Secretary).

The Secretary read the minutes of the last Committee meeting, in which reference was made to the large quantity of American honey thrown lately upon the English market, and to its quality as compared with pure English honey. Upon this point the Secretary stated that he had received a letter from Professor Redwood, which was read as follows:—

'17 *Bloomsbury Square, March* 12, 1879.

'DEAR SIR,—In reply to your note just received and the kind offer of Mr. Jackson, I may say that I shall be very glad to have samples of honey for examination and analysis. I have been in communication with Mr. Neighbour, of Holborn, respecting varieties of English as well as of foreign honey, and, although I have not yet been able to get many varieties, I am promised some at a more favourable time of the year. From the information I have received, it appears that honey collected in different districts differs greatly if the vegetation in the districts be different, and that the difference is not merely in the flavour, but also in the more or less liquid character, and the tendency or otherwise to crystallisation of the honey. With reference to an article subject to so many natural and legitimate differences, we obviously cannot take any one sample of genuine honey, and say that those which differ from it are adulterated. In connexion with the subject of adulteration, the first thing to be done is to ascertain what the nature and range of differences are in the genuine article.

'All that I am at present prepared to say respecting

the sample of American honey you left with me is, that as honey it is a very bad sample,* but I have no evidence sufficient to justify me in saying that it is adulterated. It certainly does not contain any appreciable quantity of artificially-prepared glucose or starch sugar, unless it be that the bees in elaborating the contents of the cells—and they evidently have elaborated them—have eliminated the sugar of artificial glucose from inorganic matter, which is always present in it, as produced from starch. The subject offers a wide field for investigation, and I hope to make further experiments as means present themselves for my doing so. I must repeat what I have on a previous occasion stated, that in my opinion in the present state of our knowledge, the value and quality of honey must be estimated chiefly by its physical character—that is, by its taste, smell, and colour. Chemical analysis will detect substances foreign to the composition of honey—such as starch, dextrine, or unaltered artificial glucose, which have sometimes been added to honey after it has been separated from the comb—but I have found none of these in the sample of honey received from you.—Yours truly, F. Redwood.'

The Meeting then proceeded to the various resolutions passed at the General Meeting held on February 12, and which the Committee were instructed to carry out.

1. 'The promotion of County Bee-keepers' Associations and the advantages to be offered to such Associations by the British Bee-keepers' Association.' This resolution was considered at great length. Ultimately three resolutions were passed upon the subject, viz.—Moved by Mr. Cowan and seconded by Mr. Abbott, 'That affiliated associations, paying not less than one guinea per annum, shall have the free use of the bee-tent by paying all expenses of transit to and fro, also the charge for the services and the travelling expenses of the manipulator.' Moved by Mr. Hooker and seconded by Mr. Hunter, 'That three prizes shall be given annually to affiliated Associations upon application being made for the same, viz., silver medal, bronze medal, and certificate, on the understanding that these prizes be offered for the encouragement of the production of honey in the most saleable form, and that the silver medal at least be appropriated for honey in the comb.' Moved by the Rev. E. Bartrum and seconded by Mr. Cheshire, 'That such medals and certificates be given for competition only at the annual County Show.'

The above resolutions were carried unanimously.

2. The admission of representatives from County Associations to quarterly meetings of the Central Association. It was moved by Mr. Bartrum and seconded by Mr. Cheshire, and carried unanimously, 'That affiliated County Associations be empowered to send two representatives to the quarterly meetings of the Association, it being understood that they may take part in the proceedings of the Committee, but without the power of voting. They may also introduce subjects for discussion at the conclusion of the ordinary business, provided a fortnight's notice be given to the Secretary.' It was also resolved that the Association's bee-tent should be sent to local shows, the Central Association paying all expenses of the undertaking, and to share the profits made equally between the Local Society and the British Bee-keepers' Association.

3. 'That the Committee of the British Bee-keepers' Association be requested to consider the best means of facilitating the sale of honey belonging to members of the Association, and to take such measures thereupon as seem to them advisable.' Mr. Peel stated that he had drawn up a scheme, a copy of which had been sent to each member, which, if endorsed by the Committee, he considered would carry out the above resolution, and concluded by moving, 'That the Association appoint Mr. S. J. Baldwin as their agent for facilitating the sale of honey produced by the members, under the superintendence of a sub-committee.' Mr. C. N. Abbott seconded the motion.

Mr. Hunter reiterated his opinion as expressed at the general meeting. He considered if the Committee adopted this resolution they would be taking a step in the wrong direction; he concluded by moving an amendment as follows. 'That in the opinion of the Committee it is not within the scope of the Association's objects that they should become dealers in, or agents for, the sale of honey in any manner, and that the easy absorption of the immense imports of honey from America and elsewhere show that a great market already exists, and that it only remains for English producers to appreciate and adopt the most marketable form of package to ensure a ready sale for all honey that this country can produce.' Mr. Hooker seconded the amendment.

Mr. Hunter stated, that being unwell, and not expecting to be present at the meeting, he had written to the Secretary explaining his views upon this question, and as he was now very ill and unable to speak in explanation of his amendment, he should be glad to have the letter in question read to the meeting. The Secretary read as follows:—

'Dear Mr. Peel,—With regard to the question of the need of a honey market and how far the Association should enter into the sale of honey, I cannot alter my opinion as expressed at the general meeting, firstly, that the cry for facilities for disposal of honey is based on false premises; and secondly, that it would be beyond the scope of the Association to enter into the position of honey-dealers or agents for the sale of honey. My arguments on both these points I will now give, even at the risk of repeating much that I have said before. If we take the term "honey market" in one sense, that is, a certain place set apart for the sale of honey, as is Covent Garden for vegetables, then I say that such cannot possibly be needed, inasmuch as there is no produce to fill it; if we take the term in its broader sense, that of a national extent, then I say that such a market already exists, and offers a ready opening for honey, as is proved by the engulfing of the large cargoes of honey from America. We know that the British public do not look with a favourable eye on American produce, and choose English in preference, if of quality and price equal; they would even be content to pay a somewhat larger price for a home-grown article—witness the articles meat, butter, corn, oysters, &c., but to compete with the foreigner the native must produce his goods of equal quality and appearance. If run honey is to be sold, it must be put up in sightly, handy-sized, inexpensive jars, nicely labelled and stoppered. A grocer or fruiterer should have the power to order his dozen or hundred 1 lb. or 2 lb. jars, as he now orders his jam, and be equally certain of getting what he orders; as it is, there is no certainty that an order will be filled, if given. Then, again, as to price, bees, if properly cultivated, will give sufficient quantity to enable it to be sold at about 6*d.* per lb., and which it must be sold at in order to compete with the foreigner, for there is no disguising the fact that foreign honey is much maligned. As a rule, it is good both in taste and aroma, and I don't think the best judge in England could separate good samples of foreign honey from English; when this is the case, is it not evident folly to ask double and treble price for English honey nothing better than foreign?

'The distressing wail for a honey market, my experience teaches me, comes not from working men but from gentlemen. The cause is evident: the working man who has say, 50 lbs. of honey to sell, inquires for customers amongst his richer neighbours and so finds them, while the gentleman, as it would be *infra dignitatem* to hawk his

* In order that a fair test might be made, the section of American honey given to Dr. Redwood for analysis was purchased as of the best quality, and a high price paid for it, viz. 3*s.*, the gross weight of the section being about 2 lbs.

honey about, naturally keeps it. The common price asked for honey is from 1*s.* to 1*s.* 6*d.* per lb.; this is very well *if one can get it*, and many *do* get it, but in the great majority of cases it simply chokes off the would-be customer, who would have contentedly given 8*d.* or 9*d.* per lb. Expectation is often raised to an undue height by the published accounts of some well-known bee-master, who shows how he got large prices for his honey. Other people, of course, expect to do the same, forgetting they have not the experience of the first man, nor perhaps the prestige that may attach to a well-known name. Honey in the comb is in a still worse plight than run or extracted: whenever such is on sale it is sufficient to look at it on a hot summer's day to be disgusted. New comb, always delicate, by the heat of the weather perhaps collapses; honey runs out, flies are attracted and adhere to the sticky mess, until it looks like a lump of "Catch 'em alive, oh!" Can we wonder that the grocer's temper is lost as well as his money, and he vows to have no more such honey? In certain parts of America now, and generally a few years ago, the same difficulty was experienced in selling the honey; the bee journals there gave very good advice to their readers to put up their honey neatly, and go and offer it for sale to the shopkeepers, even to leave it on sale or return, and call again; and place over their cottage doors a neat little board, "Honey sold here." (Mr. Root even keeps these in stock.) The consequence was that customers were soon found, and plenty of people soon expressed themselves as able to sell all their honey at home. So it would be in England, I am sure. Let energetic means be adopted, and there would seldom be need to send honey to London—ample consumption would be found in country towns. For the Association to set up a honey-shop, or even a store, or to act as agents between first seller and retailer, guaranteeing the honey or not, is simply madness. The realisation of the fable of the Old Man and his Ass would very soon take place, troubles and difficulties would arise on every side; both morally and financially it would be a great blunder, and tend far to ruin the Association. To enter into arrangements with salesmen of any standing would engender disappointment to all, for the quantity that could be sent would be so trivial that it would not be worth anyone's attention, unless he got a retailer's profit of say, 25 per cent, as a minimum. Lady Burdett-Coutts' offer of Columbia Market, doubtless, was made out of kindness, but I look upon it as one of those things dear at a gift, for a worse place for the purpose could not well have been found in all London. Now comes the question, how can the Association assist in the disposal of the honey? I answer (first taking it for granted that there is honey to be disposed of) by pointing out to the cottagers the forms in which they should send their honey, and more especially by supplying, or indicating where they may be supplied, with sectional supers, wax foundations and extractors, together with a cheap and simple book of instruction how to make use of these things; also, I must not forget as important *glass jars* for selling the honey in. Having this in mind, Mr. T. W. Cowan, Mr. Hooker, and myself, carefully examined all such articles in the French Exhibition, and Mr. Cowan has samples of the best, which I am sure he would place at the service of the Association. Every lecture delivered on bee-keeping, with or without the bee-tent, should be illustrated with these articles and filled sectional supers, "for seeing is believing," and many a man will attempt a thing after seeing it, who would simply pass it by after hearing it described. By the Association giving its attention to these matters, and carrying my suggestions out, I am confident the way to sell honey will be made easy, that is, whenever a reasonable price will be accepted; but I must reiterate my opinion, that the moment the Association embarks on honey trading, then once more the downward path is commenced.—I remain, dear Mr. Peel, yours very truly, JOHN HUNTER, 5 *Eaton Rise, Ealing, March* 8, 1879."

On the amendment being put to the meeting, it was supported by Mr. Hunter and Mr. Hooker only.

The original motion was then put, and for it voted—Rev. H. R. Peel, Rev. E. Bartrum, Rev. G. Raynor, Messrs. C. N. Abbott, R. R. Godfrey, W. O'B. Glennie, and J. P. Jackson. Against it Messrs. Hunter and Hooker. Mr. Cowan and Mr. Cheshire did not vote. It was unanimously resolved, that Mr. F. Cheshire, Mr. J. P. Jackson, and the Hon. Secretary, shall form a sub-committee for carrying the above resolution into effect.

It was arranged that the first quarterly meeting should be held on Wednesday, April 16, after which a conversazione should take place. Mr. Cheshire promised to open the discussion on the subject of 'The Causes of Abdominal Distention in the Hive-Bee during Winter, and the Means for Checking the same.'

The Committee then proceeded to revise the Prize Schedule of the Annual Show, to be held at South Kensington on Tuesday, July 22, and the two following days. It was resolved that the same be printed in the *Bee Journal* for April, subject to revision at the next Committee Meeting, to be held on April 16.

HERTFORDSHIRE BEE-KEEPERS' ASSOCIATION.

This Association, under the energetic management of the Rev. H. R. Peel, bids fair to be one of the most successful of our provincial associations. Several meetings have already been held in different parts of the county. A very encouraging one was held at Berkhampstead on Saturday, March 22; upwards of 200 people were present. Meetings are fixed at St. Albans on Saturday, March 29th, Lord Verulam in the chair; at Rickmansworth, on April 18th, Lord Ebury in the chair; at Hertford, on April 26th, Baron Dimsdale in the chair.

CALEDONIAN APIARIAN AND ENTOMOLOGICAL SOCIETY.—FIFTH SESSION.

Minutes of first quarterly meeting of the Session, held in M'Innes' Temperance Hotel, 12 Hutcheson Street, Glasgow, on Wednesday, 19th March, 1879. Present, Rev. Alex. R. Findlay; Rev. John Irving; and Messrs. Baillie, Bennett, Cameron, Hutchison, Johnstone, Kinlock, Laughland, Sword, and Wilkie.

On the motion of Mr. Bennett, seconded by Mr. Sword, the Rev. John Irving, of Innellan, was called to the chair. The Secretary read the minutes of last meeting, which were duly approved of. He was glad to say he had several additional patrons to add to the Society, viz., Duke of Buccleugh; Earl of Breadalbane; Sir James Fergusson; Dr. Lyon Playfair; F. N. Menzies, Esq.; M. P. M'Kerrow, Esq.; A. Malloch Bayne, Esq.; H. R. B. Peile, Esq.; A. B. Stewart, Esq., and others, many of whom had subscribed to the funds.

Sir James Fergusson stated that he wished to have four copies of the *British Bee Journal* to place in the working men's reading-rooms in his neighbourhood. The Secretary also stated that through Mr. Menzies he had received the handsome sum of 20*l.* from the Highland Agricultural Society of Scotland towards the fund with the usual allotted space at the Perth Show, and had also received some very kind letters from Messrs. Neighbour, Peel, Abbott, and Young, regarding Society work. He was sorry to add that out of 120 proof schedules, which had been sent out to members at a distance who might find it inconvenient to attend the meeting, and to whom he looked for aid in compiling a complete prize schedule which would meet the demands of all districts, very few had complied with his request for their opinions and advice in respect thereof; and he only now hopes that whatever the provisional committee may do for the good of the Society, after the opportunity thus afforded, fault-finding friends will be completely silenced.

The Secretary had much pleasure in proposing that a hearty vote of thanks be minuted to Colonel Campbell, the President, and John Smith, of Dumfries, for the valuable services rendered by them to the Society during the past year, and also that Dr. Clark be elected an honorary member of the Society. Dr. Clark had taken a deep interest in the analysis of honey, and could detect glucose when mixed with honey in a very short time. He had also had several kinds of honey from various districts under his polariscope, and had promised to do what he could to maintain the high standard of Scottish honey. In conclusion, he thought it would be a great advantage to have a chemist of his high standing in connexion with the Society.

Mr. Wilkie had much pleasure in seconding the motion, and as Dr. Clark was anxious to confer with members, and learn for himself during the coming summer something of the natural history of the honey-bee, he, for one, and he believed the whole of the members, would willingly show him the inner life of the hives and all its workings.

A Committee to conduct the show was then appointed; five to form a quorum. The prize schedule for the Perth Show was gone into minutely, and revised.

The chairman said that, while he was as anxious for reform as most people, still he did not think it advisable to do away with the beautiful Stewarton boxes all at once, but would like the opinion of the meeting. A vote was then taken, resulting in a majority in favour of a continuation of the prizes for the same. In addition to the prize schedule the Rev. John Irving, and Messrs. Bennett, Steele, and Young offered special prizes, for which they were awarded a vote of thanks.

The Rev. Mr. Findlay exhibited a Stewarton hive for transferring and hiving swarms. After some discussion regarding its workings, it was agreed to test its merits at the forthcoming show.

A vote of thanks awarded to the chairman for presiding brought the meeting to a close.

SURREY BEE-KEEPERS' ASSOCIATION,

Instituted February 1879.

For the encouragement, improvement, and advancement of bee-culture, particularly as a means of bettering the condition of cottagers, agricultural, and other labouring classes, as well as the advocacy of humanity to the industrious labourer—the Honey bee.

President.—J. Stewart Hodgson, Esq., Lythe Hill, Haslemere.

Vice-Presidents.—Rev. Wm. Jebb Few, St. Nicholas' Rectory, Guildford; Captain C. D. Campbell, H. M. I. N., Box Grove, Road; R. B. Shearburn, Esq., Munstead Heath, Godalming; H. Parson, Esq., The Firs, Guildford; J. W. Pewtress, Esq., Hurtmore, Godalming.

Acting Committee.—Rev. W. Jebb Few; R. B. Shearburn, Esq.; Newton Seth Smith, Esq.; Henry Parson, Esq.; Capt. C. D. Campbell, H. M. I. N.; S. A. Sholl, Esq.; Mr. Dashper.

Treasurer.—Capt. C. D. Campbell.

Secretary, pro tem.—Mr. F. H. Lemare.

Local Secs. or Centres.—Mr. Jas. Lee, Bagshot; Mr. Buttery, Witley.

The object the promoters have in view, in establishing this Association, is the extension of the more humane and profitable system of apiculture, by which any person, with a fair amount of attention and perseverance, and without destroying any of his stock of bees to secure a comparatively small amount of honey, may be enabled, not only to preserve them alive, and increase them to the utmost of his accommodation, but to realise an annual profit on his outlay.

The introduction of the honey slinger, by means of which honey in its purest state is extracted and the comb preserved, is one, amongst many other things, which the Association is desirous of making more widely known. This happy invention not only entirely supersedes the old system of destroying the comb to obtain the honey, but also saves the time otherwise wasted by the bees in building new comb, which time would be more profitably spent in storing honey for their owner.

Few persons are aware how readily they might add to their incomes by a small outlay of time and money spent upon bees: many instances might be cited of profitable bee-keeping.

The Committee therefore suggest apiculture to all who wish to increase the pecuniary means of the labouring population, by promoting one of the most interesting pursuits, which no one, who has once devoted a little time and attention to, would willingly relinquish. The Committee respectfully request a kind perusal of the rules of the Association, and while inviting the hearty co-operation of all classes, would remark that much may be done by example; for, show a man a good result, and he will seek the means to obtain it. Teach him to help himself; start him, if necessary, with a good pattern hive, and perhaps a swarm of bees, which he might repay from its increase, and soon it will be found that 'the little busy bee' will pay his rent, or greatly assist in doing so.

The Committee will be glad to add to the members of the Association, and forms to be filled up for that purpose may be had of the Committee, or of C. D. Campbell, Treasurer, and F. H. Lemare, Secretary, of whom rules and regulations, which are of the usual character, may be obtained.

DEVON AND EXETER BEE-KEEPERS' ASSOCIATION.

The annual meeting of the members of this Association was held at the Albert Memorial Museum. The Right Worshipful the Mayor (W. H. Ellis, Esq.), the President of the Association, occupied the chair. There were also present the Rev. J. G. Dangar, Rev. P. Williams, Rev. J. Dickenson, Admiral R. Moorman, W. H. Gamlen, R. J. Gray, S. B. Fox, W. Church,—Kennedy, &c. The Mayoress and several ladies also attended. In opening the meeting, the Chairman congratulated the Society upon this its fourth year of existence, and said that although the last two years had not been so prosperous as they could have wished, yet in such bad times it was something to be able to keep the Association together. The Hon. Sec. (Mr. W. N. Griffin) read the annual report.

The Treasurer, Mr. Robert John Gray, reported that during the past year the income had been 37*l.* 1*s.* 1*d.*, leaving a balance in hand of 7*l.* 19*s.* 2*d.*

On the motion of Mr. W. N. Griffin, seconded by the Rev. P. Williams, the President was re-elected for the ensuing year. Mr. Gray was re-elected Treasurer, and Mr. Griffin, Secretary. Mr. Gamlen moved that the following gentlemen be elected on the Committee:—The Revs. P. Williams, J. G. Dangar, and J. Dickenson, and Messrs. Kennedy, S. B. Fox, and J. B. Browning. This was carried *nem. con.*

Papers were also read by the Rev. P. Williams and the hon. secretary, Mr. W. N. Griffin, on bee-keeping and its profitable result when properly and scientifically managed; and Mr. S. B. Fox read two papers on the industry of bees and the origin of bar-frame hives, respectively. A vote of thanks to the Chairman for presiding brought the meeting to a close.

BRITISH BEE-KEEPERS' ASSOCIATION.

May I through your columns suggest to the secretaries of county bee-keepers' associations that, in order to avoid clashing with one another, they should fix the dates of their county shows for the present year as early as possible if they wish to take advantage of the offer made to them on the 12th of February at the general meeting of

the British Bee-keepers' Association? To county associations affiliated to the central or British Association by the payment of not less than one guinea per annum, the latter,—in addition to a silver and a bronze medal and a certificate, these prizes being for the encouragement of the production of honey in its most saleable form (the silver medal at least being appropriated for the honey in comb), for competition at the county show,—offers the use of its bee-tent, specially constructed for exhibitions, without any other stipulation than that the servant and manipulator of the British Bee Association shall accompany the tent and see to its erection and removal, the county association paying him at the rate of half a guinea per day and also defraying his travelling expenses. The travelling expenses of the tent must also be defrayed by the county association, which must also make good any damage sustained by the tent whilst in their possession. Secretaries of local bee-keepers' associations or of floral and cottage garden societies can arrange with myself for the attendance of the bee-tent at their exhibitions at such times as it is not required by the central or county associations: but in these cases the Committee of the British Bee-keepers' Association find it necessary to take upon itself all expenses whatever, and to divide the profits with the local society, and the Association must be allowed to charge each visitor an admission fee not exceeding 6*d*., but varying according to the circumstances of the locality. At such shows a bar-frame hive is offered as a prize to the cottager who shall produce the best and strongest skeps of bees, not being a swarm of the present year, on condition that there shall not be less than four competitors, and that these shall allow their bees to be manipulated. The manipulator will transfer the bees and combs of the winner into the prize hive without making any charge.

I may add that Mr. S. J. Baldwin is prepared to visit the apiaries of members of the British Bee-keepers' Association, and also of the associations affiliated with it, for the small charge of 7*s*. 6*d*. per day exclusive of his travelling expenses: and any two members residing near each other whose apiaries can be inspected in one day can divide his services between them. Members of the British Bee-keepers' Association who wish to dispose of honey are invited to communicate with Mr. S. J. Baldwin, Gipsy Cottage, South Vale, S.E., sending a sample of their honey, carriage paid, in jars or sectional supers not exceeding 3lbs. in weight, and stating the quantity which they have for sale in these forms.—HERBERT R. PEEL, *Hon. Sec., Abbot's Hill, Hemel Hempstead.*

BRITISH BEE-KEEPERS' ASSOCIATION.—At a numerously attended meeting of the committee of this Association, held on Wednesday, the Rev. E. Bartrum in the chair, it was determined to appoint an agent to assist the members of the Association in disposing of their surplus honey. It is a curious fact, that while tons of American honey are imported into England and readily sold, numerous complaints are made that good English honey cannot find a purchaser. The Association is taking steps to remedy this undoubted evil.—*Times.*

The American honey now seen in the London shops is in small square blocks of virgin comb, each in its own frame or 'sectional super.' In this form it is capable of being transported without injury, and meets with a ready sale. Until the old-fashioned plans of beekeeping are abolished, competition with the skilled apiarians of America is hopeless.—*Field.*

THE REV. E. BARTRUM ON DAIRY FARMING.

The Rev. E. Bartrum, head master of Berkhampstead Grammar school, has the following remarks in a recent number of the *Live Stock Journal*:—

'The remarks of your correspondent "Good Cheese" on your excellent article "International Dairy Farming," ought not to pass unnoticed, as they tend, in my opinion, to encourage that optimist view of everything English which is inflicting serious injury upon our national interests at the present time. There is no question about the fact that American produce is coming into this country in enormous quantities, and that, from one reason or another, the profits of our dairy-farmers are seriously diminished. Now why is this? One among several causes undoubtedly is that the Americans have improved the quality of their cheese, while little, if any, progress has been made in England. The quality of the various articles offered for sale is a matter of much greater importance at the present day than it was twenty years ago; the public taste has become more educated, and even the poorer classes have learnt to discriminate between what is really good and what is inferior. You tell us there are more than 1000 cheese factories in the State of New York alone. How many factories are there, I should like to ask, in the whole of England, Scotland, and Ireland? People tell you there are certain factories in the neighbourhood of Derby, and I believe there are some in Cheshire, but though I know a good part of England, Scotland, Ireland, and Wales, and have been over factories, mills, mines, and works of all kinds, I have never come across a cheese factory. At Aylesbury, it is true, there is a most flourishing factory for the production of condensed milk; but even this is not an invention, as I believe I am correct in asserting that the first factory of the kind was established in Switzerland. A "Tenant Farmer" writes in *The Times* that a company is being formed in Buckinghamshire to introduce the co-operative principle into dairy farming; and really it is high time that something of the kind was done. We know from past experience that work done by machinery surpasses, in nine cases out of ten, that effected by hand labour; and this principle probably is as true of cheese as of any other product. In butter, again, quality is a matter of primary importance, and I have reason to know that a neighbour of mine, who at times wins prizes for his butter, commands a much higher price in the market simply because his quality is always good. The British Dairy Farmers' Association, though formed rather late in the day, has a grand sphere of usefulness before it in promoting a better knowledge of cheese and butter-making. I hope, moreover, they will do what they can to promote co-operation. Something, it is clear must be done, or our American cousins will take no small portion of our bread out of our mouths. *In another article of food largely imported from America—honey—the English are far behind their rivals in the quality of their produce, and are therefore being driven out of the market in their own country. The English cottager burns his bees at the end of the season, and taints his honey; contented with a straw skep, he is satisfied with a maximum of 10lbs. of honey per hive, and cares little what the quality may be. But the "canny Scot" or the "cute Yankee" knows how to get from 50lbs. to 100lbs. of honey per hive: the quality, too, is often so good that it commands* 1*s*. 6*d*. *per lb. in the market, whereas the cottager rarely receives, if he can sell it at all, more than* 9*d*. The Americans are also sending us cattle in continually increasing numbers; and "An Exhibitor" very well argues in *The Times* that the farmers must no longer keep fat stock until they are three or four years old, nor should prizes be given for animals that must occasion financial loss, but rather for such as do not exceed twenty or twenty-four months. They must, he observes, be fatted from calfdom, and be ready for the butcher before they are three years old, or the Americans will beat us. Another writer in *The Times*, a military officer charged with the supervision of a large Government contract, declares that all the locks used on the works are American, the quality is so superior that the English are driven out of the market. I earnestly trust that the present depression of trade and agriculture will rouse our countrymen from their self-

satisfaction, and teach them that if they are to hold their own in the great struggle for existence, if not for supremacy, they must continually be learning and improving, combining and co-operating for the promotion of good and useful ends, remembering the rule of life that Cicero has recorded in the account he gives us of the elder Cato. Even to extreme old age he learnt every day of his life something more than he had learnt the day before. Since writing the above I have met with another illustration of the supreme importance of quality as compared with quantity. *A tradesman at Brighton assures me he can sell any amount of honey at good price, if only the honey is good: inferior honey he cannot sell at all, nor will he purchase at any price.* John Bull must learn to attach more importance to the quality of the article he offers for sale, or otherwise his cousins will elbow him out of their way and seize the lion's share of the plunder.'

PROGRESS IN BEE-KEEPING IN GERMANY.

Having promised to give in your valuable *Journal* information of the progress in bee-keeping in Germany, I have to inform your readers that there have been made three steps in advance upon which we German bee-keepers set a great value.

1. *Feeding with meal inside the hive.*—Every bee-keeper knows how eager the bees are in gathering meal in the open air, and I am informed by the *British Bee Journal* that English bee-keepers know how to make the best use of this substitute for pollen. But feeding inside the hive with complete success was till now an unsolved problem, at least to us German apiarists. Pastor Weygandt, in Eschbach, an eminent German bee-keeper, after having experimented some years, made a speech on this subject before the great Wandering Union of German and Austrian Bee-keepers, at Greifswalde, Pomerania, Germany, in September 1878, and had the satisfaction to receive the greatest applause. Being an intimate friend of Pastor Weygandt, he informed me early in the late spring, how to feed with meal inside the hive. I tried his method and was much astonished by the success. The hives of three colonies which I fed on meal were rapidly filled with brood and bees. From the best of them, which had an excellent Cyprian queen, issued a swarm on the 18th of May, an occurrence unknown at this time in our country. The old mother-stock I divided into three little colonies. Every one of them reared a queen, and became in the course of the season a very strong colony and gave much surplus honey. I must say that I did not allow these colonies to build combs at all, but that I inserted now and then full combs and brood combs. The swarm from the 18th of May, swarmed again on the 20th of June. The old stock received a young fertilized queen and the swarm full combs. Both of them did well; from the other two colonies I fed with meal I made artificial swarms; and although they did not become the best ones of my apiary, in the spring I could take from them many a brood comb and some surplus honey. Swarms fed with meal build their combs rapidly. Feeding meal *à la* Weygandt does not induce the bees to leave their hive and search after pollen and water, at least not in such a degree as others; they remain more at home, and are therefore in less danger from perishing from cold and rain. Now, of course, the reader desires to know in which way Weygandt feeds his bees; it is very simple. He boils ½lb. of wheat-meal with 2lbs. of crystallized sugar or honey and 7lbs. of water, and skims the mass. When cooled he has a thick gelatinous pap which will not undergo fermentation for four or six weeks.* From this pap he takes one or two spoonfuls and dilutes them with sugar syrup or honey that the bees may take it with their proboscides, and so he feeds them.

2. *Cure of foul brood.*—The German bee-keepers are much indebted to Hilbert, of Maciejewo, Russia, who has solved the foul-brood question. He was the first who cured this disease by employing salicylic acid, which he diluted in warm water and by means of a spray-producer sprinkled upon the bees and combs, in the hive. This last year he has discovered a new method to cure foul brood. He evaporated the salicylic acid, the steam of which penetrating the cluster of bees settles on every bee and in every corner of the combs and hive. As the vapour of salicylic acid will injure the unsealed brood, he hunts out the queen and applies it only to colonies with sealed brood. Feeding honey and salicylic acid are also necessary.

3. *Artificial capping of honey-comb.*—The Pastor Knoblauch, of Rolofshagen, Pomerania, Prussia, is the discoverer. He takes hot liquid wax and blows it upon the open honey-combs by means of an atomiser or spray-producer. The brims of the cells must be dry and the wax be fixed.

Should I have done any service to the readers of the *Journal* by writing the above lines it would be very agreeable to me.

I hope to meet some of the British bee-keepers at the International Exhibition in London, next July.—C. F. H. Gravenhorst, *Brunswick, 1st February*, 1879.

* This kind of thing was tried in England some five or six years since by Mr. Cheshire, but the mixture fermenting in the cells burst off the lids.—Ed. *B. B. J.*

Correspondence.

*** *These columns are open to Subscribers, so that their queries, replies, correspondence, and experiences, may be* fully *and* faithfully *recorded: and for the discussion of all theories and systems in Bee-culture, and of the relative merits of all hives and appurtenances, that the truth regarding them may be ascertained. The Editor, therefore, must not be expected to coincide with all the views expressed by the various writers. All Correspondence is addressed to the Editor.*

AN IRISH BEE-KEEPERS' ASSOCIATION.

Ireland must always remain behind the sister kingdoms so long as we are debarred of the above means of raising our knowledge in the apicultural world. I have it from an eminent authority on bee matters that there is no work on bees published in this country (book form) 'up to the times.' I enclose you a private letter herewith to show you that if we only made the move the members of the Royal Agricultural Society of Ireland would be inclined to aid and assist our efforts in the formation of an Apicultural Exhibition, to be held at Dublin in August of each year. It could be held in conjunction with a Rose Show in the Exhibition Palace. The railway companies of Ireland would be induced to issue single fares for double journey, thus giving the provinces an opportunity of assembling at head-quarters—viz., Dublin; and you or some other expert would come over to preside at the annual meeting. The *Bee Journal* columns would strike the rules, with amount of annual subscription to be paid by each member. We could then establish a market for honey, and thus secure a more cordial welcome for our little friend the honey-bee. Pardon me for trespassing on your valuable space.—J. Traynor, *Tinahely, March* 15, 1879

[We should be delighted to aid in the establishment of an Association for Ireland, and have already obtained a promise from the Hon. Sec. of the British Bee-keepers' Association that he will take part in the movement, and do all he can to help it forward. Such an Association

would rapidly take root in Ireland, and its branches would permeate every district, as in England and Scotland, spreading the desired knowledge of apiculture and causing the formation of the necessary markets for disposal of the honey which Ireland yields so abundantly. We hope next month to be enabled to publish a list of prizes to be offered at the first exhibition, and that all friends will aid in support of the funds. We are quite willing to act as treasurer until another is appointed permanently, and to be enrolled as one of the members.—Ed. *B. B. J.*]

PASTURAGE FOR BEES.—No. X.

(*Continued from* p. 147.)

The order Salicaceæ contain the poplar (*Populus*), willow (*Salix*), osier (*Salix viminalis*), sallow, or goat-willow (*Salix caprea*). These are some of the earliest resources for the bees in spring. They afford a kind of threefold succession. From the flowers the bees obtain both honey and pollen; from the bark, propolis; and the leaves, honey-dew. The catkins afford an ample supply of pollen in March and April. The flowers of *Salix caprea* are very beautiful, and are excellent for the bee. The willows are a very useful and good-paying crop, as with them baskets, hampers, and a great variety of useful things are made.

Black poplar (*Populus nigra*) affords pasturage for bees, both by its catkins and the honey-dew, which is freely secreted on its leaves. It attains a height of eighty feet, and its wood is one of the best for making turnery ware, and is very slow in taking fire. It is a quick-growing tree, and prefers a moist soil, but will thrive in almost any climate and any soil. The leaves are deltoid-pointed, toothed, with glands at the base of the teeth, and always smooth on both surfaces, no white down on their under surface, the same as the aspen poplar (*Populus tremula*) when young.

The common alder, or elderberry (*Alnus glutinosa*), comes into bloom in March and April, and affords honey for several weeks together. The buds and flowers are particularly grateful to bees. The juice of the fruit makes an excellent wine that is good for colds, and will keep for a great number of years.

Bramble or blackberry (*Rubus fruticosus*); Raspberry (*Rubus idæus*). These plants bloom in July, and afford the bees a quantity of nice-flavoured honey. The leaves are often covered with a great quantity of honey-dew, on which the bees are very busy.

Gooseberry and currant (*Ribes*) afford the bees an extraordinary quantity of early honey and green pollen. The leaves also afford honey-dew—especially the currant.

Cotoneaster microphylla.—Upon no shrub or plant have I noticed the bees so busy as upon this flower, as every one seems to be possessed with a bee. The *cotoneaster* is a quick-growing evergreen shrub, and though the leaves are small, the growth is so dense and close as to give a carpet of deep shining green to rock, and rugged ground, whilst for walls it clothes them in a close green mantle, be they old or new; and for low walls, up to those of a dozen feet or more, it is, for a close-covering, perhaps, matchless. It blooms in May and June, the flowers are white, and only from their numbers are significant; the bright red berries following appear to great advantage, like coral beads upon the brightest and deepest of emerald setting. Rugged and sloping banks, after the plants become established, are covered by it speedily and effectively. It is not suited to a position very bleak or exposed, as the growths are cut by severe weather, especially if the ground be rich, and the growths consequently strong and unripe. With moderate shelter, however, it succeeds admirably.—William Carr, *Newton Heath Apiary, near Manchester.*

(*To be continued.*)

HIVE CONSTRUCTION—THE QUILT.

I have at times seen in the pages of the *B. B. Journal* remarks as to the relative value of various kinds of hives, I will give you my experience of this last winter. I have one double-walled hive, wood (Woodbury), on examining this I found it dry, and plenty of bees, and a fair amount of food, but some of the bees had gone too far away from the main body, and there being no passage through the combs, died, but in all other respects was quite dry and right. Another hive I must call treble-walled, of glass, two dead-air spaces, on examining this I found it as damp and uncomfortable for the bees as any of the sulphur school could wish, not more dead ones than you might expect, but very damp, and the floor-board mouldy. Another hive, straw, Neighbour's Improved Cottage, when I examined this I found the floor-board quite wet, and the exhalation from the bees condensed all round the hive, this shows the value of the quilt; my other hives are wood, made of half-inch deal (Woodbury), these were *quite dry*, and one or two, I think two, had rather more dead bees on the floor-board than I like to see, but they were strong and healthy, and bid fair to throw early swarms. This examination was about a month since. I use the the quilt for all except Neighbour's.—J. Torry, *Lower Fant Road, Maidstone, March 14th.*

ANALYSIS OF HONEY.

A CORRECTION.

Allow me to correct one or two inaccuracies in your last impression.

1. In stating my analysis of the three samples of honey (page 204) you have omitted after colouring matter '&c.'—the contraction for '*et cetera*,'—by which are meant *other matters including colouring matter.*

2. In the last clause of my letter which you have embodied in your article on glucose (page 205) the word *Dextrine* has been twice used instead of *Dextrose.* The clause should read thus, 'When cane-sugar is altered by acids or by a ferment it is always converted into a mixture in equal proportions of *Dextrose* and Lævulose and never into *Dextrose* alone.'—John Clark.

GLUCOSE ADULTERATION.

I am thankful to Dr. Clark for the trouble he has taken to reply to my queries. The item I supposed you might have omitted when you employed the word 'briefly' was dextrine. This item, all im-

portant as the indicator of the source of the glucose it accompanied, whether the analysis were chemically or optically made, I hardly felt justified in assuming to be present, since no mention was made of it in the analysis—hence the alternative sources of glucose I assumed possible and inquired about.

I am sure we are much indebted to Mr. Bennett for having had the analyses of the three varieties of honey made, and to him and you for the publicity given to them.

The heather honey, I observe, contains about 3 per cent less sugar than the clover honey; but the proportion of lævulose is greater by 10 per cent in the heather honey than in the clover. I should much like to know if the remarkable viscidity of heather honey is *solely* due to this extra quantity of uncrystallizable sugar, or if it is in any way due to the presence of any kind of mucilaginous matter, or anything else. Perhaps Dr. Clark will kindly tell us.

I am afraid the explanation of the glucoses has been somewhat misunderstood.

When Dr. Clark writes, 'These two kinds of glucose—viz., the glucose made from starch and the glucose found in flowers—are easily distinguished by the polariscope,' he, as will be seen on reference to the preceding part of his letter, simply intends that the polariscope enables him to distinguish between a solution containing dextroglucose and one containing both dextroglucose and lævoglucose; in untechnical terms, it enables him to say whether or no grape-sugar is accompanied by uncrystallizable sugar; it reveals the presence or absence of uncrystallizable sugar. But he is not to be understood to intend, I believe, that the polariscope enables the analyst to distinguish between grape sugar obtained from starch and grape sugar obtained from nectar or grapes. From your concluding observation I infer this part of Dr. Clark's explanation has not seemed clear to you. The several optical and chemical properties of each variety of sugar, when pure, are the same, from whatever source it may have been obtained. The power of distinguishing between the varieties of sugar is possessed by the analyst who has no polariscope; but the optical method is very much more rapid. The power and advantage of this instrument are so well known amongst chemists that your assumption of Prof. Redwood's ignorance is unmistakably erroneous.

If no foreign ingredient is present in a sample of honey, and if no ingredient usually present is absent, and the proportions are natural, it cannot be said to be adulterated; nor can it be positively asserted to be genuine, though the composition may be that of genuine honey. The presence or absence of such ingredients and their quantities is all that analysis can show.

The analysis of the American honey in the comb shows that it has a composition similar to that of honey known to be genuine: it cannot therefore be said not to be so.

The grape and uncrystallizable sugars may have been derived from the nectar of flowers; but, for all analysis can show, they may have had a less attractive origin, as those who have tasted the honey seem inclined to believe.

It would be quite possible to prepare a syrup having a composition similar to that of genuine honey, and undistinguishable from it by chemical analysis and the use of the polariscope, which it would be a fraud to sell as honey, even though it were stored in virgin comb by bees.

The storage of honey in comb is to a certain extent a guarantee of its genuineness. If the bee-keeper has not consented to its adulteration it is probably genuine; certainly it has not been adulterated by the dealers. This cannot be said with certainty of honey out of the comb.

As with several other kinds of food, so with honey: the human mouth and palate must be the ultimate court of appeal, unless an arbitrary standard of genuineness be adopted.—E. R. N.

TAKING BEES TO DISTANT PARTS.

In answer to the inquiries of Dr. Irving in the last number of the *Journal*, I believe the most approved method of shipping bees to distant parts, such as Australia, is to 'fix' them on tough empty combs in a well-ventilated hive. For food they should have a supply of 'candy' and a sponge kept constantly moist. Of course, darkness and quiet are indispensable.

In conjunction with my friend M. Fiorini of Venice, I have made several attempts to introduce Ligurian bees into Australia and the East Indies, but all efforts hitherto made have been unsuccessful. However, further trials are in progress.—J. P. Jackson.

WASPS AND BEES UNDER CHLOROFORM.

A few days ago a friend told me that she had often placed a bee under chloroform, and that the victims, when they found they must die, invariably brought their stings to their mouths, and sucked the little drop of poison into their mouths. She offered to show me the experiment, and endeavoured to catch a bee, but failing to do so, she caught a wasp, an insect upon which she had not previously experimented in this way; and we both eagerly watched to see if the wasp would behave as the bees had done under the influence of the narcotic.

The wasp being put under an inverted tumbler in company with a piece of paper saturated with chloroform, in a very few seconds the insect fell on its back, and almost immediately afterwards curled up the tail with the sting protruded, and a drop of clear fluid on the end of the sting. The sting was brought to the mouth, and the drop of fluid disappeared. The wasp then became motionless. After a few seconds the tumbler was removed, and the air allowed to play freely on the insect, but no sign of life appeared, except once a slight twitch of the wing. To test whether the insect was really dead my friend placed it in a butterfly cage and left it out of doors all night. Next morning the wasp had disappeared, having perhaps crawled out by a little chink in the cage door.

Can you tell me whether so curious an action of these insects when subjected to chloroform is well known? Does it fulfil any good purpose? Is the poison a narcotic itself, and taken by the insect to dull its pain when death seems inevitable? The revival of the wasp appears to show that neither the chloroform nor the poison of its own

sting is deadly to the insect.—W. M., *Clevedon*, in *Nature*.

[The above was sent to us with a request that we would give an opinion thereon, and we do so by suggesting that W. M., of Clevedon, and his *friend* are dunces, and that the editor of 'Nature' can be little better, having allowed such twaddle to go forth in unmitigated form. Surely *he* as editor might have given an opinion: or stated as a fact that the whole suggestion is absurd.—Ed. *B. B. J.*]

ROLLED *versus* PLASTER-CAST FOUNDATION —LIGURIANS *v.* BLACKS.

Please kindly let me know whether you think that comb-foundation made at home from one of Cheshire's half-a-crown casts will answer the purpose as well as that of American manufacture, some specimens of which I have seen, but which is rather expensive for those who require a considerable quantity.

I should also like very much to see some authoritative settlement of the question of the comparative merits of Black and Ligurian bees in respect to their capacity to deal with red clover, a matter slightly referred to by Captain C. A. in a late number of the *B. J.* If Ligurians can work freely on that plant it appears to me that this, in addition to their other recommendations, settles the point in their favour—at least as regards the county in which I live—North Hants. Last year there was a field of many acres of red clover close to my hives; but, though I watched very carefully, I could never see a black bee upon it, while they sailed over in streams to a field of vetches a mile from home.—J. H. D., *Linkenholt Rectory, Hungerford*.

[Mr. Cheshire's apparatus, ingenious though it be, bears no comparison to the beautifully finished product of the best American manufacture. The crude foundation made by painting on the plaster-cast will answer well as a guide when of about an inch width: but the rolled foundation is infinitely preferable when wider (*i.e.* deeper) sheets are required. The fault in the plaster-painted sheets lies in the fact that in using the brush the tops of the corrugation are imperfectly covered, and holes are thus left, which the bees cannot fill up; besides which, while the Cheshires require a vast amount of elaboration by the bees, the American simply requires thinning out of its walls to become perfect comb. We hoped that the question of superiority of Ligurians *versus* Blacks was quite understood. It has been many times shown, as above, that Ligurians gather honey where Blacks cannot possibly do so, and beyond doubt it is proved that they are more prolific. There will, however, be some whose experiences lead them to think otherwise; but they apparently forget that the Ligurian element has been so largely imported into England, that it is doubtful if there are any pure English bees in existence.—Ed.]

MILK DIET FOR BEES.

Will any of your subscribers who have tried the above—but perhaps I may particularly ask 'Br. J.,' who writes in your number of December—to tell me how this food is prepared? I have tried to make it on 'Br. J.'s' receipt, with the result that the stuff curdled into a nice treacle posset, and of course was quite valueless.—W. R., *Northchurch, Feb.* 22, 1879.

BEES DECAMPING.

Can you explain why the bees from one of my bar-frame hives should have left their home at this time of year? Let me first tell you that I had three strong swarms (1878) united last autumn by Mr. Baldwin, of Norwood, that they had sufficient food for winter, and thought they might require to be fed in the spring. On Wednesday (the 29th Jan.) I gave them some syrup, they were all right then, but on placing the zinc feeder (on February 4th) over the carpets *no* bees made their appearance, which I thought rather strange, and on looking at the entrance I found three or four dead bees on the ground; I then removed the floor-board and found a few more; then I lifted back the carpets to obtain a view of the interior, but not a single bee was in the hive. I took out the frames one by one and found some honey, but nothing else. I estimate my loss at about 60,000 bees at least. If you can explain this apparent mystery you would oblige—A. B. P.

[Note.—Our first impression on receipt of the above was that there had been some mistake in the 'observations' made in regard to the bees, and accordingly further particulars were requested. It is easy to believe that 60,000 bees were put together last autumn, but, as has been so often explained, so many would have died through the arduous labour of comb-building at that time of year that probably not a fourth of the number went into winter quarters. Our correspondent, however, as a later letter says (Feb. 8th), 'When I fed the hive on the 29th Jan. it was quite full of bees, and as far as I could make out they were in very good condition, but on the 4th inst. they were all gone.' It appears that the gardener observed nothing peculiar during the intervening days; and every one is puzzled. Our correspondent, living near Wimbledon, felt so interested in the subject that he paid us a visit for consultation, but nothing transpired to shake his conviction that the bees were there on th 29th Jan. yet were gone on the 4th Feb., leaving only brood and honey in the hive. Can any one suggest a reason for the sudden elopement, or must it be considered a freak?—Ed.]

THE BOTTLE PLUG.

The plug for feeding-bottle, as shown in last number, is a good dodge, and will answer capitally. I have made several for my own use, but being in want of vulcanised rubber have substituted common tea-lead, which I think will serve the purpose, and come cheaper. I have forwarded one herewith for your careful opinion.—David Ling, *Rochford, Feb.* 21.

[Note.—Tea-lead will answer all the purposes of vulcanite while it remains intact; but it is of so soft a nature, that it can scarcely be depended on. The sample sent, when received, was crushed beyond repair, the crumpled letter placed within the plug having been forced through it. We have no predilection for vulcanite: all that can be said in favour of it is that it is non-corrosive, and a bad conductor of heat: at the same time, it is very brittle. Zinc has been declared to be poisonous through oxydization, rendering it dangerous as a means of feeding. Tin plate, the most easily managed, and least objectionable metallic medium, appears to have been lost sight of, apparently, through it having been forgotten, that when metal is too cold for bees to take their food from, syrup under no circumstances ought to be necessary or advisable.—Ed.]

LIGURIANS *v.* BLACKS.

From the letter of your correspondent 'A London Bee-keeper' in *B. B. Journal*, he seems to find it hard to believe my statement that a Ligurian swarm taken in June can fill a Woodbury hive in six weeks. I can tell him another fact that the same stock threw off a second swarm on the 3rd of July, and having no Woodbury hive empty I had to take them in a Lee's Prize Cottage hive (which contains ten bars an inch bigger than the Woodbury size); and by the end of September they had nearly filled seven out of the ten bars, and had increased into quite a strong stock, so much so that I have kept them through the winter, the only assistance I gave them was one pound and a half of barley-sugar in September.

All my bees have wintered well and have not suffered much from the unusual hard weather. I should recommend your correspondent to invest in Ligurian stocks. I obtained mine from Mr. Walton, Leamington, but doubtless he could get them from Mr. Abbott, Cheshire, or any other respectable bee-fancier quite as well, and thus would be able to prove for himself that the Ligurians breed faster than the blacks, and in many cases collect more honey, especially when there is much clover.—Capt. C. A.

BEES IN A PEACH HOUSE.

I see in the *Journal* a question by 'Staines' in regard to placing bees inside a peach-house—'Will they not batter themselves against the glass till they fall?' and your reply is, 'It is a question of Bees *versus* Fruit,' which I think is not quite correct: it is a question which is solved by every Irishman who keeps a pig in his house; but as it is still a question of importance, and often asked, allow me to say that it is satisfactorily managed as follows:—Prepare a stand inside the house, but near to the wall or glass front through which an opening is made for access from without, exactly as you arranged the Ligurians at the Alexandra Palace, and the same as may be seen at the Crystal Palace; place the hive in position at night, and in the morning make an opening in the hive (by turning up a corner of the quilt, if it has one). But great care must be taken while doing this not to disturb the bees, or they will leave the hive hastily and 'batter themselves against the glass;' but if done with care, and the bees are allowed to find the opening inside the house of their own curiosity, they will be attracted by the warmth, and leave the hive with such caution that they will scarcely ever fail to get back again, and he will have the pleasure of seeing them work with as much regularity as if in the open. If it is a large house, and any should become temporarily lost, they will be attracted by the sound of those who have with some surprise found the opening, and all will be well with the bees. I have had nine colonies working in one house, on pea-flour, at the same time (January, 1878), and can vouch for the result; but now comes the cost. Very few persons would credit the amount of exerement from nine colonies of bees, and the abominable stench from the same. I verily believe Paddy and his pig have the best of it; and unless some arrangement can be made to prevent this very few would be persuaded to try the process of fertilizing *a second time*.—Thos. F. Ward, *Church House, Highgate, Middlesex, Feb. 5th*, 1879.

P. S.—For the benefit of experimental bee-keepers, I may mention that my object in building a glass-house 20 ft. long, 12 ft. wide, and 10 ft. high, heated with hot-water pipes, was to promote early breeding; and when the weather was too cold or wet for the bees to work outside, by having the two entrances (inside the house and outside) they could work inside. I found my arrangements in every way satisfactory as far as the working and breeding of the bees went; and to see them ravishing the early crocuses and hyacinths, filled with pea-flour, while outside it was impossible for bees to live, was a gratifying sight, except for the result previously explained. And although the house has been thoroughly cleaned and painted since, the chemical action of the faeces has destroyed the paint, and I have still the objectionable marks for a legacy.—T. F. W.

[We are greatly obliged to our esteemed correspondent for his valuable communication, for anything the result of actual experience is of great worth; but although he proves that bees will work in a confined area, which was not doubted by us, he by no means disproves our assertion, that it is a question of '*bees versus fruit*.' Our querist (Staines) wished to put one of his stocks into his peach-house, and it will be evident that with so short a removal as that implies, they could not be safely allowed a separate entrance from the outside, or they would, on emerging, go back to their stand and perish. Putting them inside would bring about the results we stated, without doubt.

The *modus operandi* adopted by our correspondent above, while giving the bees leave and license to follow their own devices, can scarcely be considered an improvement on ours, since it is evident that the bees are terribly afflicted with dysentery, creating a stench within the 'peach-house,' that rivalled the drawing-room odours created by Paddy's pig. In fact, it is admitted that Paddy has the best of it. If all were 'well with the bees,' as is suggested, there would be no sign of dysenteric discharges within the peach-house; in fact, there would be no filth at all, and only such odour as would be caused by the consumption of the large quantity of pea-flour. The mistake which our experimentalist has fallen into is in his having two entrances or doorways to his hives, thus permitting a draught of cold air through the brood-chamber. The bees are evidently stimulated by the food, but take considerably more than they should to keep up the temperature of their hive, and hence are in a bad way, as is usual in such cases. We have no wish to damp the ardour of any one who fairly tries out an idea, and take no exception to the statement that straggling bees find their way into hives, attracted by the hum of their fellows, though they are as likely to go into the wrong hives as the right ones, where so many as nine are kept; but looking at the matter from our point of view, we have little doubt but that in the spring the whole of the hives will be affected with foul brood, and we earnestly hope our enthusiastic correspondent will report again in May if there are any bees left to speak of.—Ed. *B. B. J.*]

DYSENTERY THROUGH LATE FEEDING.

I have been unfortunate enough to lose two of my stocks, and write to ask whether the combs had better be kept as they are for future use—*i. e.* after

getting out the dead bees and cutting away the parts that are dirty? I hardly know the cause of this mischief, but fear it must be dysentery. The tops of several combs are very damp and dirty. I have done my best for them, but fear the cold must have beaten me (and them)—it has been so severe and protracted. One stock was in a wooden box (not a frame-hive) and the other in a skep. The former especially was in September very strong. They have been fed with barley-sugar lately—*i. e.* on looking at them now and again I used to put in a piece on the top for them to eat when they wanted it. In October they had a considerable quantity of syrup. I changed the floor-board this month on a fine morning and found it damp, and with a very large number of dead bees. The sugar I gave them at the top seemed to get stained and dirty soon after it was put in—perhaps from the evacuations of the bees; but I know not. I am very sorry (but not at all disheartened) at this, for it seems such a poor result of my care: it almost seems as if it would have been less cruel to brimstone the bees in the autumn. I wish to be, above all, a *humane* bee-keeper. However, I am only a beginner: this is my first winter. The Ligurians seem fairly well. I put a piece of barley-sugar on the top of the frames now and then. To-day I changed their floor-board; there were about 200 dead bees on it, and some liquid (syrup?) on one part. Is that a very bad sign? This winter is very trying to bees and their owners.—L. T. R., *Leamington.*

[There can be little doubt but that the late syrup-feeding in October last was the cause of the dysentery that destroyed the bees. It is an old subject of warning with us, but while fine weather lasts is too often disregarded. The bees in the combs could be best cut out bodily, and the combs sprayed with salicylic acid in warm water solution, after which they may be hung in a dry room for next season. Comly's fluid will do as well, and is equally innocuous. The cheapest way to get that is to make it by saturating distilled water with the salt called permanganate of potash. Put an ounce into a bottle, and fill up with water; shake, and use, filling up again and again until all the salt is dissolved, and held in solution. The dead bees and the syrup on the floor-board were probably caused by the barley-sugar, which deliquescing would run down through the cluster.—Ed.]

EXTRACTS FROM THE DIARY OF A LADY BEE-KEEPER.

1876, *Oct. 24th.*—P. has offered me a hive of bees for 1*l.* His arguments, joined to my own reminiscences of days long ago, have made me agree to buy them, in spite of doubts, fears, and warnings.

28th.—P. brought two hives, tied up in cheese-cloths, and carried on poles, for which I gave him 2*l.*, with two floor-boards, 2*s.*, cases, 4*s.*, posts, 8*d.*, labour, 2*s.* 6*d.* = 2*l.* 10*s.* 2*d.* Set them up below the strawberry-beds, near the young pear and plum trees, facing S.E. Told them to do well.

1877, *April 9th.*—A. B. offered me her whole stock of bees and furniture for 1*l.*, containing one hive of bees, several old straw skeps, four floor-boards, and a long wooden cover sort of house, with sloping roof, open in front and behind, sent free of charge. The man who brought them charged 2*s.* 6*d.* for carriage (an imposition). Seems to me it is the way of the world to cheat when it can easily.

Expenses as above	£2	10	2
10th.—Set up the house just behind the others. Cost for	1	2	6
Paint, 1*s.* 5*d.*; nails, screws, hinges, putty, 1*s.* 6*d.*; labour, 2*s.* 6*d.*; sugar, 1*s.* 6*d.*	0	6	11
May 1st.—P. set things ready for new swarms, 2*s.*	0	2	0
29th.—No. 1 hive swarmed. Very good indeed. W. 1*s.*	0	1	0
30th.—No. 2 hive swarmed. Very good indeed. P. 1*s.*, W. 2*s.*	0	3	0
June 8th.—No. 1 sent out a cast. W. 1*s.*	0	1	0
	£4	6	7

P. refused to help me any more; gave me over to W. Advised me to trust to W., as being a near neighbour. No other swarms in this neighbourhood yet.

9th.—Expenses brought over	£4	6	7
Bee-furniture from Mrs. Pagden	1	13	7
Oak posts, 4*s.*; carpenter, 2*s.* 6*d.*; screws, 6*d.*	0	7	0
Zinc feeder, 8*d.*; bee books, 3*s.*; labour, 4*s.*	0	7	8
	6	14	10
Three swarms, value of	3	0	0
	£3	14	10

Set up in life at the cost of 6*l.* 14*s.* 10*d.*, of which three swarms have already paid me 3*l.* in value.

Mem.—A. B.'s hive was a failure. The man who brought it on a cart handled it so roughly: there were not twenty bees in the hive when it arrived. 'Profit and loss; Dr. to Cash:' must settle that matter between my bees and myself. Let it go.

The inside of the hive was black and burned up with the fumes of sulphur, used to quiet the bees. Three small pieces of comb were in the hive. Sent the hive away, after cleaning it out, ready for use.

8th.—Put the cast from No. 1 into A. B.'s empty hive; fed it up well. W. ill. Not able to attend to my bees any more. C. introduced me to W. as a clever bee-owner, and also advised me to go and see S. at the S. R.

12th.—Saw W.'s bees. Took advice and several ideas on bee-culture from him. He lent me a Nutt's Collateral Hive.

14th.—Went to S. Saw his bees. Agreed with him in many things. Lent me Vol. I. of *Bee Journal.* Advised me to take it in.

15th.—No. 2 looked like swarming again. W. advised me to send for P.

16th.—P. came, such a kind-hearted, dirty man. Talked to the bees, and handled them as though he loved them. Advised me to ask S. to care for my bees. Could not promise to come when wanted, not being his own master.

17th.—No. 2 still hanging out as fit for a second swarm. Set E. to watch them at 12 o'clock.

1 p.m. E. under my window screaming, 'Bees are swarming!' Ran down in haste. Found the bees furious, darting about, wheeling round and round the hive, and unripe gooseberries and pieces of apple strewed all about the hive.

'What have you been doing?'

'A-making of the bees swarm.'

'How?'

'Shied them things at 'em.'

'You little goose! I wonder you are not stung to death.'

3 p.m. Bees not quiet yet; all over the hive and under the floor-board.

5 p.m. Bees began to go into the hive. 7 p.m. all right.

20th.—E. at it again. Standing over No. 3 (the cast), with a short stick in his hand, which he continually brought down with vengeance on the floor-board.

'What are you doing now?'

'A-killing of them drones.'

'Who told you to do it?'

'No one. I heard 'em saying as the drones ought to be killed.'

'I wonder drones or something else don't kill you. Come away, and don't go near the the bees again; you will get stung to death.'

'I ain't afraid,' he said. 'They never hurt him, and they won't hurt me. If you like I'll take all the swarms, and do for them.'

(N.B.—E. is a page-boy, not yet eleven years old, but strong, robust, tall, broad, looks twelve at least, and as bold as a lion.)

July 1st.—S. came to look at my bees. Feeding-bottle 3*s.*, bee-books from Mrs. G. 3*s.*=6*s.* S. took up No. 1 hive. 12lbs. honey, 6 lbs. comb, 2 lbs. wax, 1*l.* Mem. Wax full of dead bees.

14th.—Transferred No. 2 to a new hive—cut up the old one. 4 lbs. honey, 1¼ lb. wax, 5*s.* 6*d.* Very few few bees, hive full of dead bees and very dirty.

20th.—Sugar for feeding No. 1 and No. 2, 2*s.* 6*d.*

21st.—Bees in both hives all gone or dead—so ends 1877.—Left home in September. S. took charge of bees. Cost of feeding and attendance—sugar, 12*s.*; visits, 5*s.* = 17*s.*

Gains.	£	*s.*	*d.*	Losses.	£	*s.*	*d.*
3 New Swarms	3	0	0	2 Hives .	2	0	0
Honey, Wax, &c. . .	1	5	6	B.'s lot .	1	0	0
				Expenses .	2	12	0
	4	5	6		5	12	0
					4	5	6
Loss in 1876–77					£1	6	6

Mem. Bad management, must do better in future. Old man took home my wax to melt, have never seen or heard from him again. *Experientia docet*—Experience Dr. to 1*l.* 6*s.* 6*d.* Balance.

(*To be continued.*)

ARTIFICIAL COMB FOUNDATIONS.

TRANSLATED FROM THE 'ALSACE BEE JOURNAL.'

LETTER III.

(*Continued from page* 194.)

The third objection is that wax-sheets are easily broken—yes, certainly, if you don't know how to manage them. If you handle them, for instance, in the winter, in the cold, they will break; but then there is nothing to prevent your working with them in a warm room. Even in the hive itself they may get broken, if you place them anyhow, or anywhere. As a general rule never put artificial comb foundations in a hive destined to receive a natural swarm—for the weight of the bees which hang themselves in bunches, like grapes, from the frames, will tear the sheets. In addition to this, the excessive heat caused in the hive by the excitement of the swarm is sufficient of itself to melt the wax-fixings and to detach the sheets. So you should hive your swarm in a receptacle with frames, to which simple guides are attached, and a few days after you may very well replace half the frames by frames fitted with artificial comb foundations, placing them alternately with the others. If your frames run athwart the hive, the first one should not be a wax-sheet, and you should change Nos. 2, 4, 6, &c.

It is scarcely necessary to add that in the case of artificial swarms obtained from frame-hives, you may in all cases make use of frames mounted with wax-sheets, wherever you formerly placed empty frames, furnished only with guides.

As a final caution, it may be added that in no case should the transport of hives be attempted before the cells are completely built over the wax foundations.

The fourth objection made is that the bees build less willingly on artificial foundations, than on a strip of natural comb. This, however, depends partly on the strength of your colony, and partly on the place where you insert the artificial foundation in the hive.

If your hive is weak, a wax-sheet placed at the end or back of the hive will be a long time before it is attacked. But the same fate will certainly attend a frame with a strip of natural comb under similar circumstances. But this is the fault of its position in the hive, and not of the thing itself.

Therefore (except you are preparing partly-built combs for next spring's use, and do not wish the queen to lay in the partially constructed cells), you must hang your frame with the artificial comb foundation, in all weak colonies, right in the centre of the brood-nest, their work will go on at once at a rate proportioned to the strength of the hive. I will make any bet you please, that at the end of a week, my frame with the artificial comb foundation will be found to contain at least ten times as many eggs, as any frame you like to bring me, which had only a piece of natural comb for a guide fixed to it. Other conditions of success are as follows:—

1. Never introduce more than one wax-sheet at a time into a hive, *i.e.* do not place two together.

2. Always place one fully built frame between each wax-sheet that you insert.

3. And, most especially, confine your operations as much as possible to hives with young and active queens.

It may be accepted as an axiom, without exception, that a young and active queen makes a busy and hard-working hive, and that an old and lazy queen has an exactly contrary effect.

Finally, it may be said that the time for using artificial comb foundations extends from the 15th of April, to the the 15th of August, which is the busy time for the bees, and not earher or later. With these precautions, you may rely on it, you will never have to regret your conversion to the use of artificial comb foundations.—DR. REISSER.

COMB FOUNDATIONS—DIRECTIONS FOR USE.

BY W. RAITT.

1. In cold weather slightly warm the sheets before handling.

2. For frames, cut the sheets with penknife and straight-edge, so that when fastened to the top bar, there may be a quarter inch clear space at each side, and a half inch at bottom, and pare the edge to be fastened perfectly straight.

3. Invert the frame in the left hand, balance the sheet in the middle of the top bar, and pour from a spoon or smelter half a teaspoonful of very hot wax on one end of the joint. Hold the frame sloping, so that the wax will run to the other end, fixing as it goes. When set, carefully turn and do the same on the other side.

4. A depth of from one to two inches is all that should be used in supers, fastened as above, on one side only.

5. Be careful to support the sheet while inverting the frames to their proper position, and for security, hang them at once in an empty hive.

6. It is advisable, to avoid risk of stretching or breaking down, to have each sheet worked out by the bees between finished combs for swarms. If no spare combs are available, it is good to confine the bees to only as many frames as they can cover by dividing boards, inserting fresh frames as space is required.

7. Spare combs may be obtained by keeping strong stocks working out sheets, one or two at a time, before or after the main honey harvest.

8. In swarming time, hives full of sheets may be safely used as *nadirs* to strong stocks, the stock being afterwards divided, and a queen given to the queenless portion.

[The above are useful hints, but we fear Nos. 6 and 7 cannot always be conveniently carried out.—Ed.]

New Bee-book.—Cook's new *Manual of the Apiary*, just published, comes with highest encomiums from America; we have just received it, and certainly it appears to have cut the ground from under future book-makers for some time to come. Will be reviewed next month.

Echoes from the Hives.

Galphay, Ripon.—'I am making myself a dozen of the Woodbury hives, exactly like Abbott Bros., and I think I can make them as neatly. I am, however, much surprised at the amount of work in them, and do not know how you turn them out so cheaply. If I had not begun them, and carried them on, altogether, I am sure I should not have bothered to make more than two or three. My bees have all (twelve hives) survived the storm. I do not see any difference in the mortality between the wooden hives and the skeps. I will look into them the first warm day, and let you know if there is any difference. In reading your *Journal* it always strikes me that many of your correspondents open out their hives at unseemly times and do harm in many ways. I hope to be in town this spring and shall certainly look you up.'—A. J. W.

Mulbarton.—'I have just had a look at my stocks, I am sorry to say those I put into the bar-frame hive and some others, are dead, from *want*, since I wrote to you last; they were fed as long as they could take it; had they been put in sooner they might have stored more food, in this case they wanted some barley sugar given them, and had I given it when I last looked at them no doubt it would have saved them.'

[The passing winter has been a 'caution' to those who delay autumn regulation and preparation, but 'who'd a thought we were going to have such a dreadful time?' Moral. Always prepare for what is not expected.—Ed.]

Blair Athole, N.B.—'Bees wintered first-rate notwithstanding the severity of the winter, and I may send you some jottings of temperature, &c., soon.'—A. C.

The Quilt.—'I took advantage of the mild morning yesterday (Feb. 6th), and the glimpses of sunshine, to look at the bees, and change all the floor-boards. They are all strong (with one exception), thanks to the quilts, which I have no doubt about now are superior to crown-boards. One hive showed signs of dysentery, and a great many dead bees. However, we saw the queen and brood, so we shifted the combs and bees into a fresh dry hive. They have all barley-sugar in bottles on the feeding-stages, with the large hole open for them to get it. I am going to transfer on the earliest opportunity from another abomination in the shape of a hive I bought in London, in which you cannot move the floor-board without the hive falling, unless some one holds it while the floor-board is dried. It is a bar-frame hive, but most inconvenient.'—S. R. W.

A Good Example.—*Hertfordshire.*—'I am particularly anxious to find my bees well and strong to make a good start this year, and show what can be done with care and good management. Our rector has become a member of the British Bee-keepers' Association; and we hope to induce our poor neighbours to manage their bees better. Your hives and apparatus which I have astonished many; for, except myself and two other people, all about us destroy their bees. Although it was not a good season last year with us, I obtained a much larger harvest of honey than my neighbours; and at our Cottagers' Show the honey I sent was very much admired. I have received so much kind advice from you, both by letter and through the *Journal*, that I venture to trespass on your time by writing this.'—M. L. C.

Queries and Replies.

Query No. 300.—*Small Swarm.*—If I were to order a small swarm of Ligurians, and on arrival give them half-a-dozen combfuls of brood, but clear of bees, from as many hives, of course *they* would do well; but if I gave the hives thus robbed a frame each full of foundation, could I depend upon them filling it out properly with worker-comb, and not with elongated cells containing drones? If you think I could depend upon the robbed stocks doing their duty (to me at least), please book me for a small swarm at the earliest date consistent with safety. Twelve stocks have stood the severe weather, with no other protection than that afforded by hives built after the pattern of your Cottage Woodbury, with double walls and quilts. Trusting we may all have a good season.—H. M. S., *Wirksworth.*

Reply to Query, No. 300.—You may fully rely on the Ligurians doing well, better even if you gave them a frame or two of comb-foundation after two or three days; and inasmuch as the stocks from which the several combs would be taken would contain fertile queens, there can be no reason to suppose that the bees and queen will fail in their duty. Success, in our opinion, is a foregone conclusion. We are glad to hear of the successful wintering.—Ed.

Query No. 301.—Dysentery—Space above the Frames.—I have been very unfortunate during the last frosts. Two of my hives of bees are defunct, and the rest seem to me to be suffering from dysentery. I have no winter passages cut, and so have brought them into a warm room, and are feeding them with warm syrup, very thick. What would be the proper treatment for this disease at this time of the year? As soon as they are settled again I will change their floor-board. All my hives (8) are Neighbour's, with the ¼ in. space above the frames and thin honey-board. I shall change them as soon as possible for quilts, which I think you will say would be preventive of dysentery. I am always regretting that I did not start with other hives. I might mention I have had quilts on the top of the boards for a further protection, and the feed holes open for ventilation, and covered by the quilts.—G. P. C., *Bucks.*

Reply to Query No. 301.—After so much has been written against the 'space above the frames,' we hoped it had ceased from the land, for where it and the other abomination, the crown-board, exist, the bees are nearly sure to go wrong. Dysentery should be prevented, for it is not easily cured; if we had a case, we should set the hive on a hot plate, and dry it out at about 100 degrees Fahrenheit. On no account must the bees be confined to their hives, whether indoors or out, or they will 'worrit' themselves, and increase the disease. Extracting the unsealed honey is one of the best preventives of further ill effects, but that can only be done in fine weather. Barley-sugar feeding is the best in such cases, giving plenty of ventilation. The greatest evil in respect of dysentery is that it inevitably induces breeding, and the larvæ produced, having been fed upon unwholesome food, die after their cradles have been sealed over, and hence, in our opinion, is started foul brood. Former numbers of *Journal* teem with the subject, and indices may be profitably consulted. Quilts on the top of the honey boards may have helped to prevent condensation in the hive, but they could not by any possibility be said to prevent the dispersal of the heat under the board, nor

assist the all-essential upward insensible ventilation so necessary at this season.—Ed.

Query No. 302.—Removing Skeps and Bar-frame hives.—I want to remove two hives of bees, one a bar-frame, the other a skep seventy or eighty miles under personal attendance: can it be done, and what is the best way of packing them and how soon it should be done if practicable?

Reply to Query No. 302.—In this matter a good deal depends on the age and weight of the combs and their toughness, and the means of transit. Presumably they will have a three hours ride by railway which is not a long one, and not dangerous when under careful supervision. As regards the skep we would blow some smoke into the entrance, and in a few minutes turn it upside down, still using smoke to cause the bees to remain between the combs. We would then thrust pieces of tough old comb or rolls of twisted paper between the combs in a line across them, to prevent them falling to the right or left, and then lay a square of cheese-cloth (straining canvas) over and tie round with twine about two rings from the upper side of hive. To keep the twine in its place a few short hair-pins should be thrust in as staples over it and the corners of the canvas should be pinned down in the same way. Next take a hay, or straw band, and form it into a circle as thick as possible, but not larger than the skep and set it in the middle of a large handkerchief (or square of canvas); set the skep on the ring and tie the corners of the handkerchief above the canvas that confines the bees to keep all comfortable and form a handle to carry it by. The bar-frame hive should have its frames made rigid by screwing a board over the top bars, so that they cannot move, and so that the bees cannot escape, then smoke the bees, and invert the hive, and treat it as directed for the skep. Instead of a hay band a board fitted with four or five mattress springs on which to set the hives, or india-rubber balls might be arranged as springs or buffers to ease the jolting. They would travel all the better if placed upon a cushioned seat in the carriage so arranged that the combs point in the same direction as the passengers' legs when setting straight. The best time for such removal is when the weather is fine, so that the bees can fly on reaching their destination, otherwise they will be liable to suffer from dysentery.—Ed.

Query No. 303.—(1) Describe best plan to place super on stock hive? (2) Would wax melted on bars do as well as guide-comb? (3) Must I use preventers to secure pure honey? I was thinking of hiving swarm in super first, and let them work down; I could place four swarms in four supers, and four more in conical skeps over four flat skeps. The whole eight would be worth by about the 15th August 8*l*. The bees would have time enough after that to replenish their store in the stock-hives, and I would be able to have my honey in the market before a glut set in. The bees find no difficulty in entering stocks after fumigation.—J. Traynor.

Reply to Query No. 303.—The safest and best plan is to let the bees in the first instance get forward with their brood-nest and their breeding, which is so very important to their well-being, before giving them super space. A super may then be put on, with or without intermediate excluder medium, though public opinion is in favour of the latter. A line of molten wax along the centre of the top bar is sufficient as a guide; but the comb-foundation is a great help to the bees, and causes a very large saving of honey. Hiving swarms on supers makes the supers breeding-boxes for the time being; and though honey will be stored in them, and they can be removed early, the comb will be stained, and there will be lots of pollen cells amongst it.—Ed.

Query No. 304.—May I ask if it be safe to give to swarms comb that has been fouled by a stock that has died during the winter.

Reply to Query No. 304.—Old combs may be given with impunity if they have no taint of foul-brood, provided they are washed, deodorised, and dried. A solution of Permanganate of potash and water (Condy's Fluid) will do for it, but in these days of comb foundation, it will be better and almost as cheap, to use the latter, and melt up the old comb.—Ed.

Query No. 305.—*Artificial Swarming.*—Would you tell me through the medium of your *Journal* how I may legitimately increase my number of hives, beyond the number furnished by natural swarming, if I have regard to the increase of stocks rather than to the securing of honey for the ensuing season.—R. H. J., *Sheffield.*

Reply to Query No. 305.—When drones are plentiful, artificial swarming may be carried on to any extent consistent with the strength of the colonies respectively. The strongest colony should be first operated on and a swarm driven out of it in the usual way, and when the number of queen-cells raised on the old comb has been ascertained, as many other swarms, less ones, may be driven and a queen-cell given to each, leaving one in the old hive. The leaflet on Artificial Swarming post free for one stamp will give you full information on the subject.

In each case when the young queens are laying, the bees in the old hives will be sufficiently numerous to be divided again, in prospect of which another batch of queen-cells should be provided by depriving a strong stock of its queen. Nine days may be allowed for the raising of the queen-cells, but a longer period cannot be relied on, as on the tenth a young queen may come forth, and destroy her royal sisters.

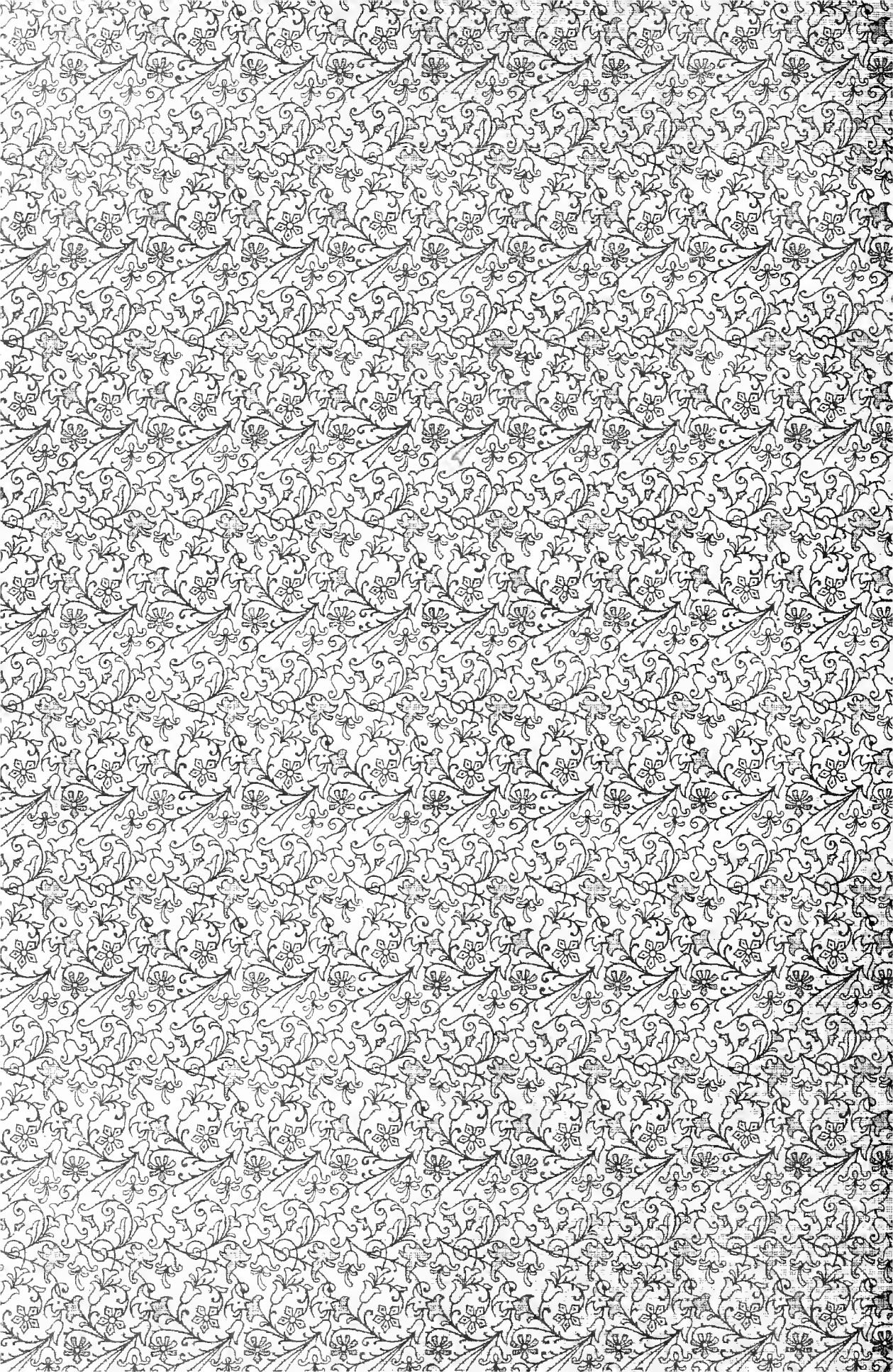
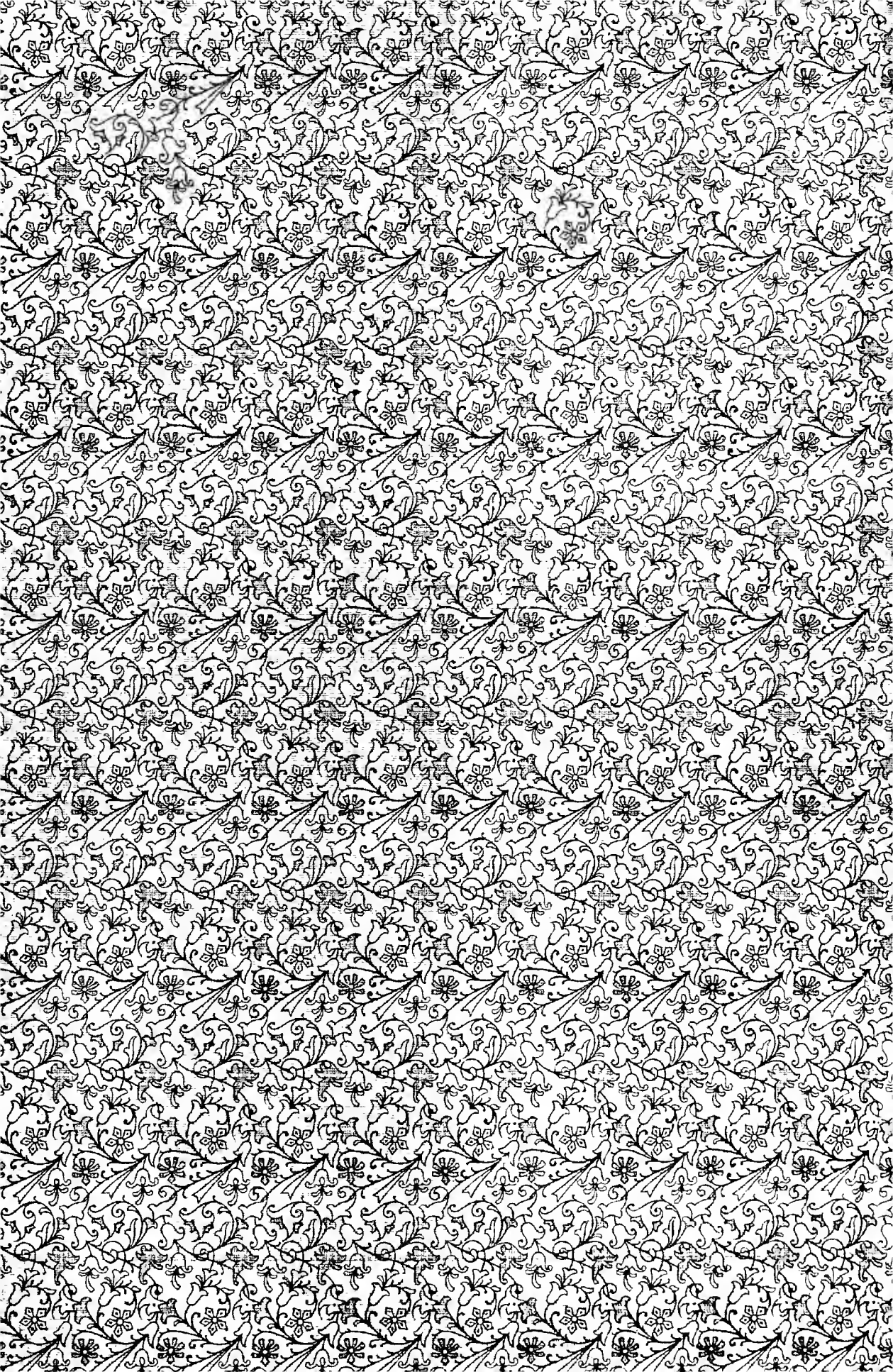
NOTICES TO CORRESPONDENTS & INQUIRERS.

Durie Garden.—Queen-bees can seldom be obtained, newly imported until May; the foreign breeders advertise them for April, and are very willing to get orders; but the weather generally prevents the fulfilment of those until the first or second week of the following month.

G. G. Wigan.—Your suggestion for a label is a good one, and shall have attention. A sectional super is one composed of sections easily detached, yet as a whole all in one. Sets of sections are single sections placed together, and held in position by wire, string, or tape, or they may be fitted into a crate. Prizes are offered for sections and supers of both description.—Ed.

Bishop Waltham, Herts.—The course adopted appears to have been the correct one, but we can give no opinion as to the presence of the queen, although she is generally amongst the last to suffer through starvation. During such cold miserable weather as the present, nothing more can be done beyond gently feeding them, preferably with barley sugar. We have not seen a bar-frame feeder of the pattern described, but will send for one and test it.

St. Mary's Cray.—The best worker bees are hybrids, so called, being a cross between the Ligurian and English races. A poor cottager should beg ripe Ligurian queen-cells of his richer neighbour, who would doubtless delight in thus aiding their improvement, and thus the desired cross would at least be obtained with the possibility of an occasional pure queen to maintain the Ligurian race. The best time is as early as possible consistent with the existence of drones.

Mr. Angus Cameron wishes us to make our readers aware that he is not satisfied with the attack of Mr. Paterson on the bar-frame (bar-frame 'feeder' we presume) controversy, and we do so accordingly.

*** *We have given four pages extra this month, but we have still to lament the postponement of several valuable contributions till next month.*